AUS | الجامعة الأميركية في الشارقة
American University of Sharjah

Undergraduate Catalog



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American University of Sharjah

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His Highness Sheikh Dr. Sultan Bin Mohammed Al Qasimi

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



H.H. Sheikha Bodour Bint Sultan Al Qasimi

Chairperson of the Board of Trustees
President of American University of Sharjah

Chancellor’s Message



I’d like to personally welcome you to American University of Sharjah (AUS), already one of the country’s top-ranked universities and poised to rise to even greater heights during your time as a member of our community. Founded by His Highness Sheikh Dr. Sultan bin Mohammed Al Qasimi, Member of the Supreme Council of the United Arab Emirates and Ruler of Sharjah, AUS has come to represent the very best in teaching and research. The combination of academic excellence and community spirit at AUS attracts world-class faculty and exceptional students, ready to make an impact in the country, the region and beyond.

Under the leadership of our President, Her Highness Sheikha Bodour bint Sultan Al Qasimi, I am truly excited by the level of energy present in our trustees, our faculty and staff, and the amazing student body here. Since 1997, AUS has been a place where students are nurtured and encouraged to excel academically, thrive socially, celebrate their cultural diversity, and have a positive influence in their communities.

As an AUS student, you will learn from and work alongside distinguished faculty who are leaders in their fields—their research and scholarly/creative activity routinely receive global recognition. Through its academic offerings, vibrant campus life, international partnerships and active engagement with organizations and leaders throughout the UAE, AUS will provide you with countless opportunities to expand your horizons and achieve personal growth that will pave the way for your future success.

This catalog provides an opportunity to learn more about AUS, including an overview of the university’s programs and policies. For more information about any topic covered in these pages, please contact the relevant office and our team will be happy to assist you.

I look forward to seeing you on campus, and I wish you all success in your exciting journey here.

Dr. Tod A. Laursen

Chancellor and Professor

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Dr. Abdulrahman Al-Ali, Professor Emeritus

Dr. Yass Al Kafaji, Professor Emeritus

Dr. Fatima Badry, Professor Emerita

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Dr. Fawwaz Jumean, Professor Emeritus

Professor Kevin Mitchell, Trustee Professor

Dr. Vernon Pederson, Professor Emeritus

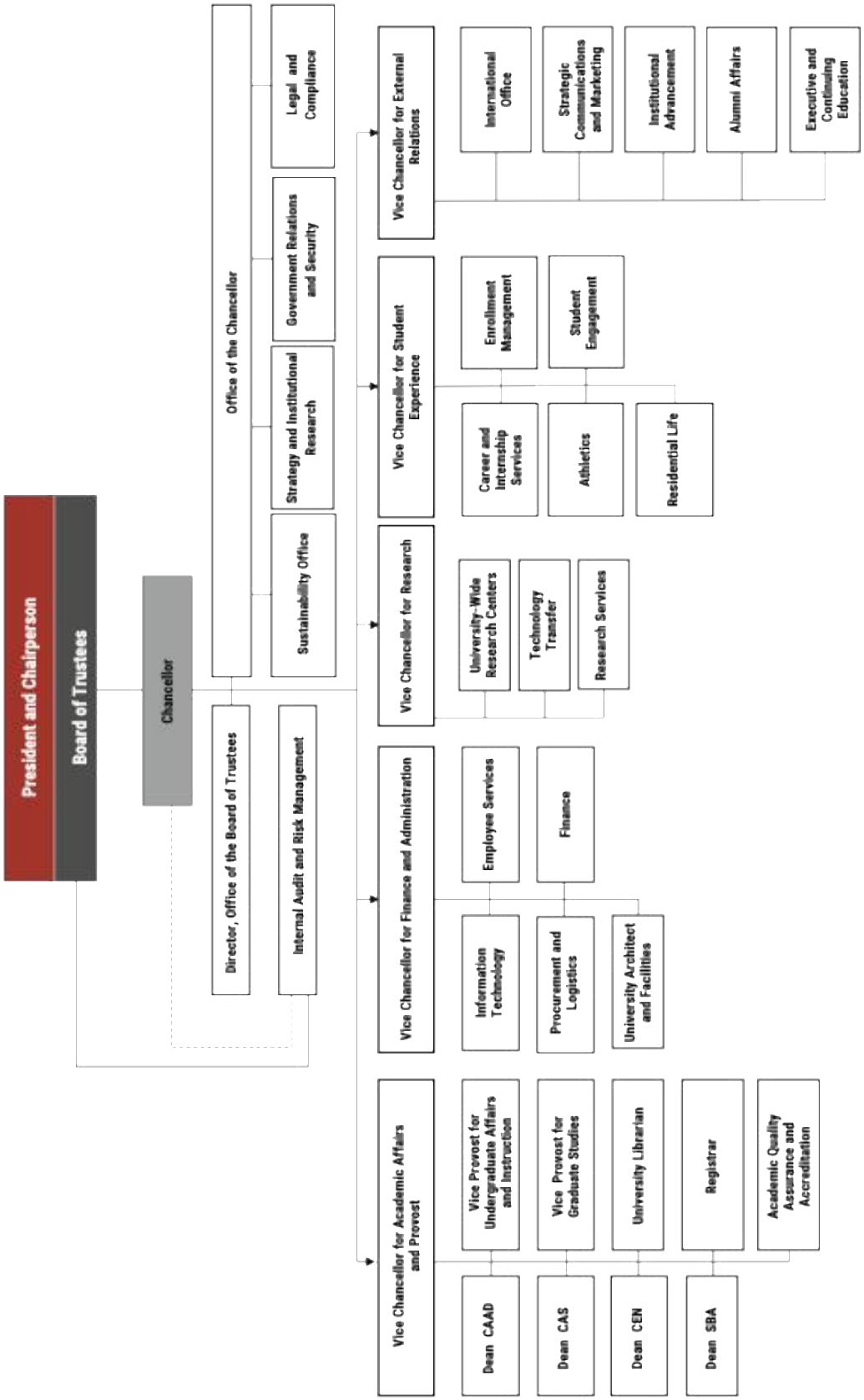
Dr. Ali Saifi, Professor Emeritus

Dr. Yousef Salamin, Professor Emeritus

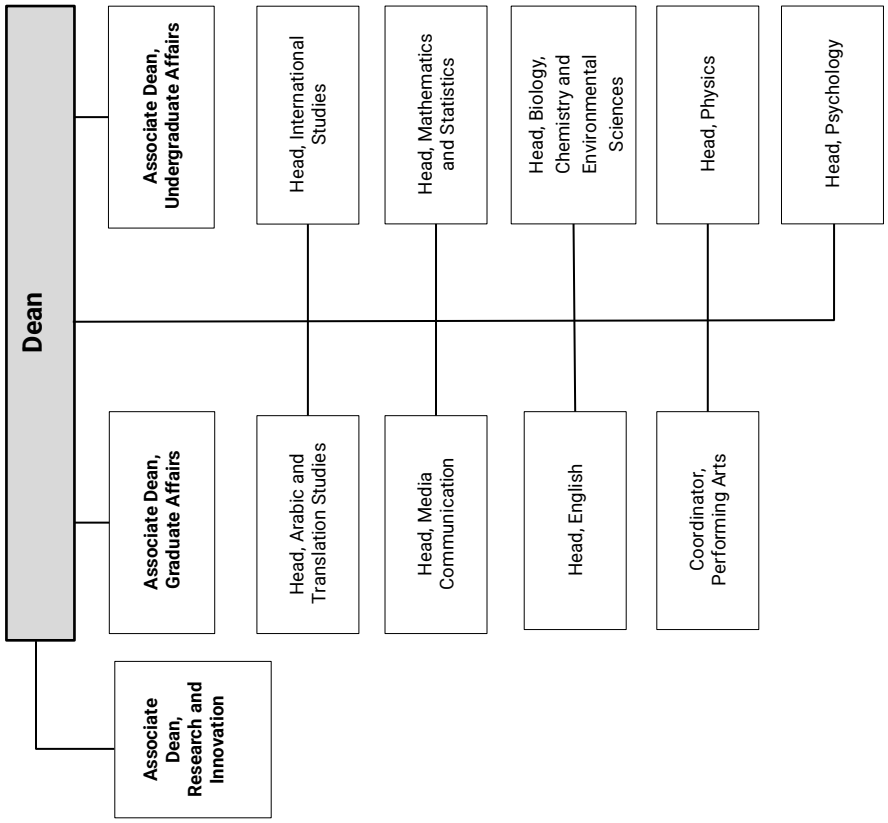
Dr. Adil Tamimi, Professor Emeritus

Dr. Manahel Thabet, Honorary Doctor of Science

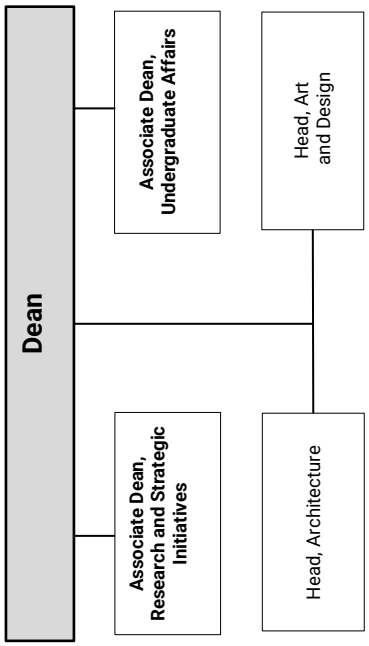
Updates to this organizational chart will be posted at www.aus.edu/organizational-chart.



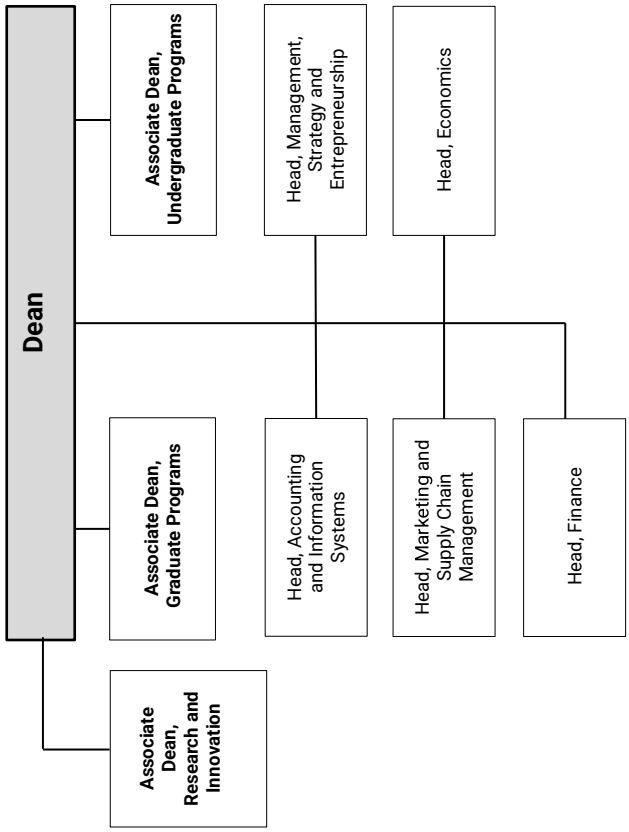
College of Arts and Sciences



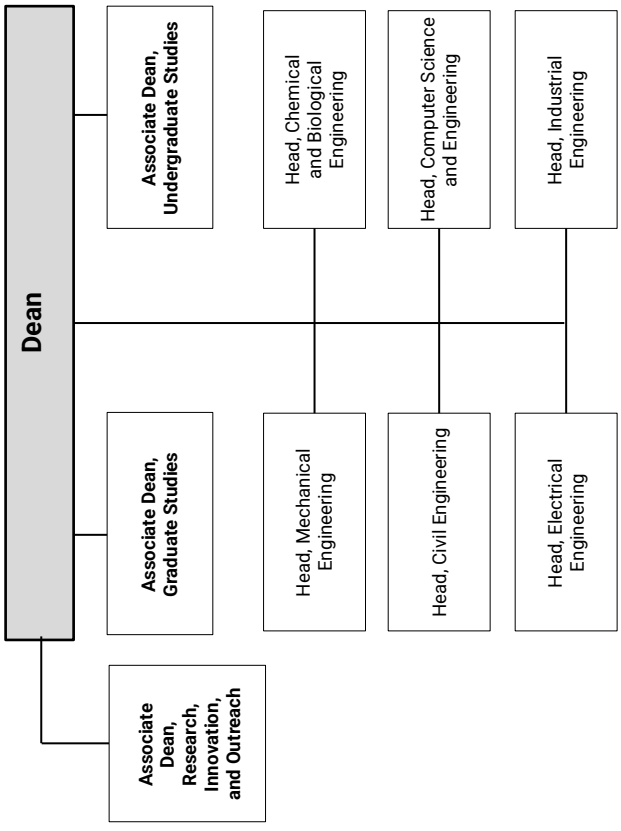
College of Architecture, Art and Design



School of Business Administration



College of Engineering



University Administrators

Dr. Tod A. Laursen, Chancellor

- Dr. Saeed Alshamsi, Chief of Protocol, Protocol and Security
  - Mr. Tariq Al Ali, Director, Security
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  - Dr. Norita Ahmad, Director, Center for Innovation in Teaching and Learning
  - Mr. Rashed Alfalasi, Director, Financial Grants and Scholarships
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  - Dr. Ahmed Mokhtar, Associate Dean, Undergraduate Affairs, College of Architecture, Art and Design
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  - Dr. Hana Sulieman, Associate Dean, Graduate Affairs, College of Arts and Sciences
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  - Dr. Lotfi Romdhane, Associate Dean, Graduate Studies, College of Engineering
  - Dr. Mehdi Ghommem, Associate Dean, Research, Innovation and Outreach, College of Engineering
  - Dr. Assim Sagahyroon, Associate Dean, Undergraduate Studies, College of Engineering
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  - Dr. Taisier Zoubi, Associate Dean, Graduate Programs, School of Business Administration
  - Dr. George Christodoulides, Associate Dean, Research and Innovation, School of Business Administration
  - Dr. Samer Kherfi, Associate Dean, Undergraduate Programs, School of Business Administration
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  - Ms. Lina El-Khoury Bendaly, Associate Registrar
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- Ms. Noora Alsuwaidi, Director, International Exchange Office
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  - Dr. Alanna Ross, Associate University Librarian, Public Services
  - Mr. Thomas Allen Hodge, Associate University Librarian, Technology and Technical Services

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Dr. Ghaleb Husseini, Associate Vice Chancellor, Research

Dr. Ali Alnaser, Associate Vice Chancellor, Research Infrastructure

Mr. John Radkowski, Executive Director, Research Services

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Dr. Umit Cali, Director, Artificial Intelligence, Smart Infrastructure and Robotics Research Center

Dr. Jay Squalli, Director, Center for Entrepreneurship, Innovation and Sustainable Development

Dr. Mostafa Shaaban, Director, Energy, Water and Sustainable Environment Research Center

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Ms. Ingrid Maria Liekens, Director, Internal Programs and Impact

Dr. Mehmet Egilmez, Director, Materials Research Center

Dr. Sammy Badran, Interim Director, Center for Arab Studies and Islamic Civilizations

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- Ms. Salma AlBusaeedi, Director, Athletics and Recreation

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- Mr. Rami Mahfouz, Director, Enrollment Management
- Dr. Hassan Ammari, Director, Graduate Recruitment and Admissions

Dr. Mohamed Alblooshi, Executive Director, Student Residential Life and Conduct

Mr. Michael Rjeily, Director, Career Services

Mr. Ali Alsuwaidi, Vice Chancellor for Finance and Administration

Mr. Hayder Awni, Executive Director, Development and Construction

Ms. Amal AlGhammai, Executive Director, Employee Services Directorate

- Mr. Ahmad Alshamsi, Director, Human Capital Operations
- Dr. Lubna Al Saraj, MD, Director, University Health Services

Mr. Mobeen Ihsan, Executive Director, Finance

- Mr. Rumaiz Hasan, Financial Controller, Finance

Ms. Amina Abdulrahim, Executive Director, ICT and IT Security

- Mr. Nabeel Amireh, Director, Educational Technologies and Support
- Mr. Naji El Nujumi, Director, Infrastructure and Information Security

Mr. Khalid Alremeithi, Executive Director, Supply Chain and Commercial Operations

Advancement and Alumni Affairs

Ms. Reem Bardan, Executive Director, Advancement and Alumni Affairs

- Ms. Rania Morsi, Director, Development and Donor Relations, Advancement and Alumni Affairs

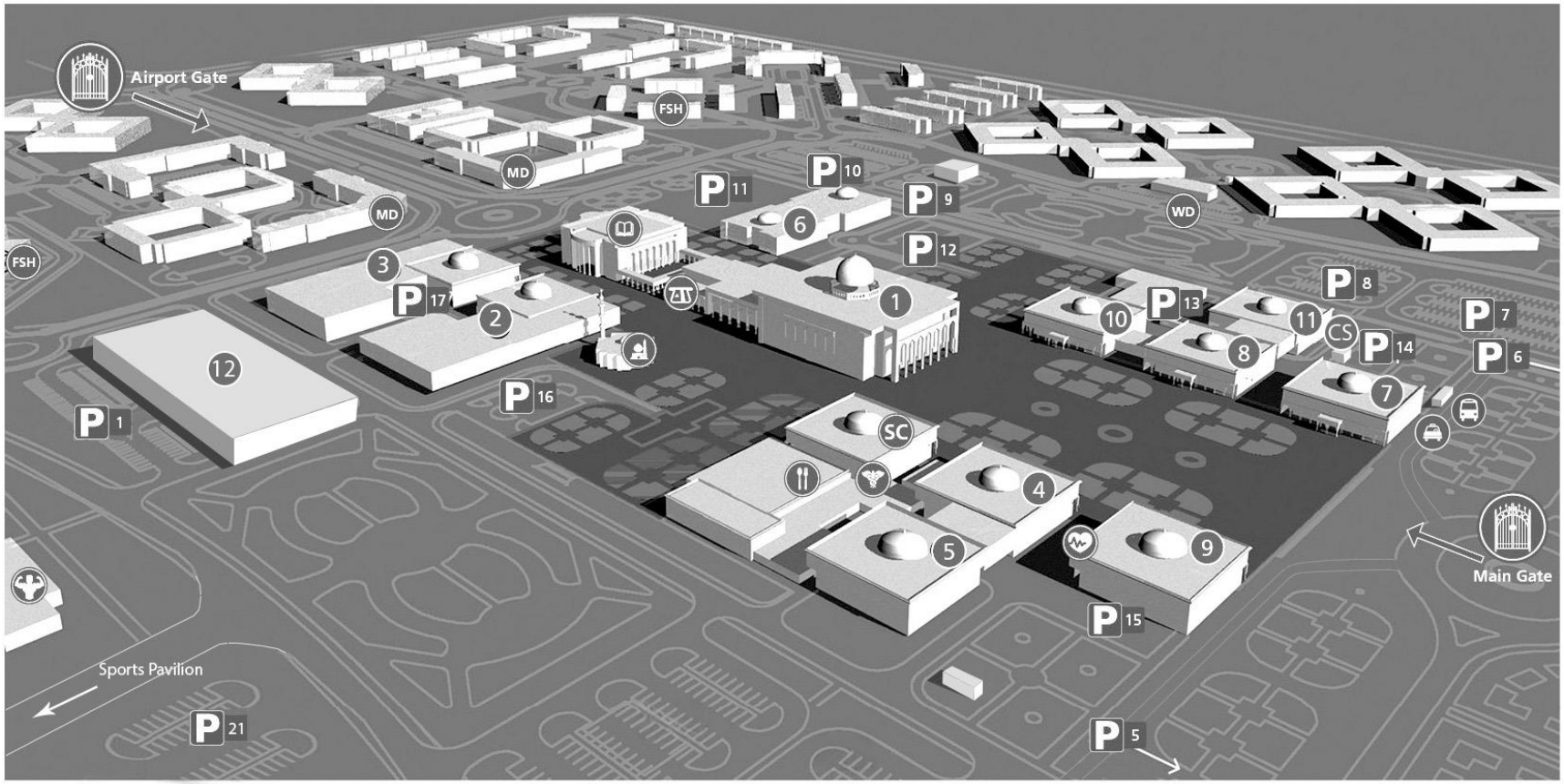
Strategic Communications and Marketing

Ms. Alanood Aldhaher, Director, Strategic Communications and Marketing

Directory

UAE Code 971, Sharjah Code 6 | For General Information: 06 558 5555/06 515 5555 | www.aus.edu/contact | info@aus.edu

Department	Telephone	Email
Academic Support Center	515 2096	asc@aus.edu
Admissions/Enrollment Management	515 1000	https://infodesk.aus.edu
Advancement and Alumni Affairs	515 2022	oaaa@aus.edu
Career Services	515 2063	careerservices@aus.edu
Chancellor	515 2205	chancellor@aus.edu
College of Architecture, Art and Design	515 2825	deancaad@aus.edu
College of Arts and Sciences	515 2412	deancas@aus.edu
College of Engineering	515 2948	deancen@aus.edu
Corporate Relations	515 2016	oaaa@aus.edu
English Bridge Program	515 2653	englishbridge@aus.edu
Executive Education and Professional Development	515 2431	ece@aus.edu
Finance	515 2232	finance@aus.edu
First Year Experience	515 2096/2355	fye@aus.edu
Graduate Studies	515 4721	ogs@aus.edu
Grants and Scholarships	515 2057/65/62	scholarship@aus.edu
Human Resources	515 2228	employeeservices@aus.edu
Information, Communication, Technology and Information Security	515 2121	itservicedesk@aus.edu
Institutional Research and Analytics	515 2225	oira@aus.edu
International Exchange Office	515 4018/27/29	ixo@aus.edu
Library	515 2252	auslibrary@aus.edu
Procurement and Logistics	515 2295	procurement@aus.edu
Protocol and Security	515 2296	aus_security@aus.edu
Registrar	515 2031	registration@aus.edu
School of Business Administration	515 2310	deanofsba@aus.edu
Sponsorship Liaison Services	515 1000	sponsors@aus.edu
Strategic Communications and Marketing	515 2212	communications@aus.edu
Student Accounts	515 2233/2184	studentaccounts@aus.edu
Student Engagement and Leadership	515 2773	seld@aus.edu
Student Medical Insurance	515 2760	studentmedicalinsurance@aus.edu
Student Residential Life	515 2244	res-halls@aus.edu
Testing Center	515 1000	testingcenter@aus.edu
Undergraduate Affairs and Instruction	515 2281	vpua@aus.edu
University Counseling Services	515 2679	ucs@aus.edu
University Health Services	515 2760	healthservices@aus.edu
Vice Chancellor for Academic Affairs and Provost	515 2020	provost@aus.edu
Vice Chancellor for Finance and Administration	515 2192	vcfaoffice@aus.edu
Vice Chancellor for Research	515 2214	vcr@aus.edu
Vice Chancellor for Student Experience	515 2166	studentexperience@aus.edu
Visa and Equalization Services	515 2066/2240	ves@aus.edu
Emergency Numbers		
Maintenance Emergency	515 2100	
Medical Hotline (24 hours)	050 635 7651 / 515 4911	
Safety and Crisis Management (24 hours)	515 2068	
Security (24 hours)	050 626 7818	



1	Main Building Auditorium
2	College of Engineering 1 Humanities & Sciences Building
3	College of Engineering 2
4	Architecture, Art and Design 1
5	Architecture, Art and Design 2
6	Business Administration Building
7	Arts and Sciences: Physics
8	Arts and Sciences: Chemistry
9	Arts and Sciences: Language Building
10	Arts Building

11	Arts and Sciences: New Academic Building
12	Engineering Sciences Building
P16	Visitor Parking
P5 - P6	Free Parking
P1 to P2 P7 to P15 P17	Reserved Parking
	Library
	Food Court
	Mosque
	Sport Complex
	Pharmacy

	Health Center
	Bank
FSH	Faculty/Staff Housing
WD	Women's Dorm
MD	Men's Dorm
SC	Student Center
CS	Chemical Store
	Bus Stop
	Taxi Stand

Undergraduate Academic Calendar 2026–2027

This calendar is subject to change. The official calendar published at www.aus.edu/academic-calendar is the final calendar.

Fall Semester 2026			
June	11	Thursday	Admissions application deadline for Fall Semester 2026
August	10	Monday	Registration for all continuing students opens, 9:30 a.m.
	13	Thursday	Registration for all continuing students ends, 5:00 p.m.
	15	Saturday	Residential halls open for new first-year students
	16	Sunday	Welcome session for new students and parents
	17	Monday	New student orientation begins
	18–20	Tuesday–Thursday	Additional placement tests for new students
			Registration for new/matriculated students
	20	Thursday	Deadline for returning students to pay Fall Semester 2026 tuition fees without late payment penalty, 5:00 p.m.
	22	Saturday	Residential halls open for returning students
	24	Monday	First day of classes
			Late registration and add/drop period begin
	27	Thursday	Late registration and add/drop period end, 5:00 p.m.
			Deadline for new students to pay Fall Semester 2026 tuition fees without late payment penalty, 5:00 p.m.
October	4	Sunday	Tuesday Make-up Class***
	8	Thursday	Applications for Fall Semester 2026 graduation due
	18	Sunday	Monday Make-up Class
November	1	Sunday	Tuesday Make-up Class
	2	Monday	Advising for Spring Semester 2027 begins
	9	Monday	Priority registration for Spring Semester 2027 begins
	12	Thursday	Honors Convocation
	16	Monday	Deadline to withdraw from a course, 5:00 p.m.
	26	Thursday	Last day of classes
	28–December 10	Saturday–Thursday	Study and examination period
December	1	Tuesday	No classes (Commemoration Day)
	2–3	Wednesday–Thursday	No classes: UAE National Day holiday
	20	Sunday	Fall Semester 2026 Commencement**
	24	Thursday	Admissions application deadline for Spring Semester 2027
Spring Semester 2027			
January	2	Saturday	Residential halls open
	3	Sunday	Welcome session for new students and parents
			Registration for all continuing students ends, 5:00 p.m.
	4	Monday	New student orientation begins
	5–7	Tuesday–Thursday	Additional placement tests for new students
			Registration for new students
	7	Thursday	Deadline for returning students to pay Spring Semester 2027 tuition fees without late payment penalty, 5:00 p.m.
	11	Monday	First day of classes
			Late registration and add/drop period begin
	14	Thursday	Late registration and add/drop period end, 5:00 p.m.
			Deadline to pay Spring Semester 2027 tuition fees for new students without late payment penalty, 5:00 p.m.
	31	Sunday	Monday Make-up Class

February	25	Thursday	Applications for Graduation for Spring Semester 2027 and Summer Term 2027 due
March	8–11	Monday–Thursday	No classes: Eid Al Fitr holiday*
	28	Sunday	Tuesday Make-up Class
	29	Monday	Advising for Summer Term 2027 and Fall Semester 2027 begins
April	5–11	Monday–Sunday	Spring Break (No classes)
	12	Monday	Priority/online registration for Summer Term 2027 begins
	18	Sunday	Online registration for Summer Term 2027 ends
	19	Monday	Priority/online registration for Fall Semester 2027 begins
	22	Thursday	Deadline to withdraw from a course, 5:00 p.m.
			Deadline to submit Summer Permission to Take Courses Outside AUS forms
	25	Sunday	Online registration for Fall Semester 2027 ends
	26–27	Monday–Tuesday	Registration for Summer Term 2027 for all eligible students
	28–29	Wednesday–Thursday	Registration for Fall Semester 2027 for all eligible students
	29	Thursday	Last day of classes
May	2–12	Sunday–Wednesday	Study and examination period
	13	Thursday	Admissions application deadline for Summer Term 2027
	17–20	Monday–Thursday	No classes: Eid Al Adha holiday*
	23	Sunday	Spring Semester 2027 Commencement**
Summer Term 2027			
May	26–27	Wednesday–Thursday	Registration for Summer Term 2027
	27	Thursday	Deadline for new and returning students to pay Summer Term 2027 tuition fees without late payment penalty, 3:00 p.m.
	29	Saturday	Residential halls open
	31	Monday	First day of classes
			Late registration and add/drop period begin
June	1	Tuesday	Late registration and add/drop period end, 5:00 p.m.
	6	Sunday	No classes: Al Hijri New Year*
July	1	Thursday	Deadline to withdraw from a course, 5:00 p.m.
	8	Thursday	Last day of classes
	10–13	Saturday–Tuesday	Examination period
	15	Thursday	Admissions application deadline for Fall Semester 2027

***** Islamic holidays are determined after sighting the moon and actual dates may not coincide with the dates in this calendar. Any make-up day needed due to an Islamic holiday occurring on a weekday will follow the same working day that was missed.
****** Commencement dates are tentative and are subject to change.
*** October 4, 2026, is tentatively scheduled as a make-up class for Tuesday.

Note 1: Loss of teaching days may result in make-up days.
Note 2: During Ramadan, Sunday morning sessions will replace the Wednesday evening session for undergraduate programs.
Note 3: The approved calendar will be followed if there are no unforeseen circumstances that require a review or change.


THE AMERICAN UNIVERSITY OF SHARJAH
الجامعة الأمريكية في الشارقة

The graduation requirements for any individual student are normally determined by the catalog that was effective when the student matriculated in the major. A student may choose to follow the catalog effective for any semester/term in which they were a registered student in their current program of study. A student who changes majors may petition to revert to the catalog in effect at the time of matriculation into the university. The policies, procedures and academic regulations published in the American University of Sharjah catalog are effective at the time of publication but may be subject to change. Students are responsible for adherence to the most up-to-date policies, procedures and academic regulations.

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The University

Historical Preamble

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

AUS was mandated to:

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

Vision Statement

American University of Sharjah (AUS) aspires to be a globally influential and locally impactful university where lifelong learners, engaged scholars and community leaders collaborate to advance innovation and excellence in education, research and creative work.

Mission Statement

The mission of American University of Sharjah (AUS) is to harmonize an American educational model with Sharjah's heritage and culture by advancing knowledge, fostering innovation and preparing AUSers to lead with purpose, competence and open dialogue.

Institutional Goals

The university is currently guided by the goals outlined in the AUS Strategic Plan 2025–2030. Information on the AUS Strategic Plan is published on the AUS website.

Overview

American University of Sharjah (AUS) is an independent, not-for-profit, coeducational institution. Although consciously based upon American institutions of higher education, AUS is expected also to be thoroughly grounded in Arab culture and to be part of a larger process of the revitalization of intellectual life in the Middle East.

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

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

In keeping with its mission, AUS offers students an education that will enable them to comprehend the dynamism and complexity of contemporary global processes. Through the integration of liberal studies and professional education, students are given both breadth of knowledge and specialization in their chosen fields. Education at AUS runs the gamut from art, poetry and religions from past civilizations to the latest skills and technologies of today's information age. These are all presented to students in order to produce future leaders with a firm understanding of how society has reached its present state. The combination of traditional and innovative teaching methods provides an educational environment in which students can realize their individual potential and pursue their goals.

Through the College of Architecture, Art and Design, the College of Arts and Sciences, the College of Engineering, and the School of Business Administration, the university offers 33 majors and 49 minors at the undergraduate level, 24 master's degree programs and eight doctoral degree programs.

The full-time equivalent (FTE) faculty to student ratio is maintained at rates that ensure offering students the best academic learning experience. The faculty-student ratio for the 2025–2026 academic year was 1:13.4 *(AUS Fact Book AY 2025–2026).*

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

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

AUS was established as an "American" university not only in its formal academic and organizational characteristics but also in the recognition that the total culture and philosophy of the educational community is as significant as the formal program of studies. Students learn the lessons of the classroom and the lessons of life in a coeducational, multicultural and multinational environment.

In tandem with its commitment to student success, AUS is keen to provide students with a voice in their academic journey. AUS surveys students' satisfaction with their overall university experience at the conclusion of their studies. At the end of the 2025–2026 Academic Year, AUS achieved a 93.9 percent student satisfaction rate, based on institutional survey deployed to graduating students.

Accreditation and Licensure

American University of Sharjah (AUS), located in the Emirate of Sharjah, has been officially licensed since June 19, 1999 by the United Arab Emirates Ministry of Higher Education and Scientific Research to award degrees/qualifications in higher education.

Degree programs offered by AUS are accredited by the Commission for Academic Accreditation (CAA) of the United Arab Emirates Ministry of Higher Education and Scientific Research.

AUS has been accredited in the United States of America by the Middle States Commission on Higher Education (MSCHE) (1007 North Orange Street, 4th Floor, MB #166, Wilmington, DE 19801 USA, www.msche.org), since June 2004.

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

The bachelor of science degree programs in chemical engineering, civil engineering, computer engineering, electrical engineering, industrial engineering and mechanical engineering offered by the College of Engineering are accredited by Engineering Accreditation Commission of ABET, http://www.abet.org/. The bachelor of science degree program in computer science offered by the College of Engineering is accredited by the Computing Accreditation Commission of ABET, http://www.abet.org/.

The School of Business Administration is accredited by the Association to Advance Collegiate Schools of Business (AACSB International), www.aacsb.edu.



Campus Life

The Campus Complex

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

The center of the AUS campus comprises 13 academic buildings. These buildings house classrooms and lecture halls of various sizes; a state-of-the-art library; laboratories, workshops and studios; and offices for faculty, academic administrators and support staff.

The campus includes student residential halls (for men and for women) as well as a large Sports Complex, Sports Pavilion, AUS Tennis Center and Student Center. Approximately 25 percent of the student body lives in campus housing. Unlike most American universities, AUS requires faculty members and their families to live on campus. Thus, there is a large and continuous faculty presence at the heart of the campus, providing students with a learning and living environment that allows for ongoing interaction with faculty members and their families.

The City of Sharjah

The location of the university enhances its mission. Sharjah sits at the crossroads of major global markets, between East and West, Africa and Asia, and remains one of the most secure and welcoming destinations in the world. It is the only emirate with coastlines on both the Arabian Gulf and the Gulf of Oman, offering easy access to international shipping lanes and a landscape that ranges from beaches and plains to sweeping dunes and mountain ranges.

Sharjah today is a diversified, future-ready economy. Its growth spans trade, manufacturing, logistics, real estate and a rapidly expanding creative sector. Culture has long shaped Sharjah's identity. Named Islamic Culture Capital of the Arab Region (2014) and UNESCO World Book Capital (2019), the emirate has built a distinguished cultural legacy. It is home to more than a dozen museums alongside major events such as the Sharjah International Book Fair, the Sharjah Biennial and the Sharjah Light Festival. In 2025, Sharjah's Faya Palaeolandscape became the first desert Paleolithic site inscribed on the UNESCO World Heritage List, reflecting decades of research and conservation.

Education and human capital are central to Sharjah's long-term development. University City of Sharjah, one of the region's largest academic hubs, brings together over 22 institutions and a vibrant community of more than 310,000 students. This ecosystem, strengthened by policies supporting SMEs, youth entrepreneurship and women-led businesses, creates a dynamic, internationally connected talent base.

Sharjah's commitment to sustainable development is also evident in investments in renewable energy, smart mobility, sustainable tourism and environmentally focused attractions. Together, these strengths make Sharjah a thriving cultural, economic and educational center—an environment that enriches the academic experience at AUS and offers students extensive opportunities for research, internships and community engagement.

Campus Services

Miscellaneous service outlets are available on campus to cater for the needs of faculty members, staff members, students and campus residents. These include services such as banking, dining, transportation, laundry, minimarts, a full-service post office, a bookstore and copy center, a travel office, a women's salon, a barbershop and a pharmacy.

Parking facilities, free and paid, are provided for faculty, staff, students, residents and visitors. AUS reserves the right to restrict or prohibit access to the campus.

The Office of Protocol and Security is responsible for campus security and serves as the university's contact with federal and local government entities, embassies and consulates. The office also provides services such as issuing and renewing AUS ID cards and parking stickers. The office manages lost and found and assists with procedures related to car registration, and on-campus traffic violations and accidents. The Office of Protocol and Security issues official letters required by the federal and local government entities. Services can be requested online through the link forms.aus.edu/app/252032964014853. The Office of Protocol and Security is located in the west Mezzanine Floor of the Main Building (offices MM 29/30/31/32/33) and can be reached at +971 6 515 2296/515 2074 or at aus_security@aus.edu.

The Office of Protocol and Security also provides a wide range of immigration- and visa-related services to faculty, staff and students through Visa and Equalization Services (VES). VES works closely with various government entities to facilitate the processing of visas and residence permits, as well as handling official government documents and transactions. The VES team provides personalized support, answers questions, and guides the AUS community through immigration procedures, ensuring compliance with UAE regulations and a smooth experience. For more information, contact Visa and Equalization Services at ves@aus.edu, call +971 6 515 2066/2240 or visit the VES offices on the Mezzanine Floor of the Main Building, office (MM 19). For additional resources, visit www.aus.edu/life-at-aus/on-campus-services/visa-services (for faculty and staff) and www.aus.edu/admissions/international-students/student-visas (for students).

Campus public and occupational health and safety are monitored by AUS Safety and Crisis Management. Safety and Crisis Management provides information on public and occupational health and safety; it also monitors, controls and strives to eliminate health and safety hazards on campus. Safety and Crisis Management is located in the Campus Service Center (office 1022) and can be reached at +971 6 515 2068.

Detailed information on campus services is available in the Life at AUS section of the AUS website and in the *Student Handbook*, available at www.aus.edu/student-handbook.

Facilities and Resources

Advancement and Alumni Affairs

The Office of Advancement and Alumni Affairs (OAAA) effectively manages interactions with various external constituencies on behalf of AUS. Its primary goals include ensuring alumni feel supported by their alma mater, securing resources for the institution's growth, and fostering strong relationships with diverse stakeholders, both on and off campus. This includes connections with industry leaders, parents of students and alumni, and other relevant parties.

The unit is committed to cultivating enduring connections with individuals and organizations. Emphasizing relationship-building throughout its mandate, the OAAA focuses on identifying, cultivating and sustaining long-term relationships that contribute to the growth and success of AUS.

A primary objective of OAAA is to strengthen the AUS Brand of Excellence by

expanding its outreach base. This expansion aims to increase the visibility of AUS through various activities and functions, ultimately enhancing public awareness and deepening constituent engagement with the university.

OAAA takes on the crucial responsibility of fostering connections with alumni to cultivate loyalty and a sense of belonging to their alma mater. The unit actively engages alumni, ensuring that AUS continues to play a significant role in their lives regardless of their location or graduation year. This is achieved through regular communication, instilling pride in the institution and implementing programs that maintain the relevance of AUS in the lives of its alumni.

OAAA also strengthens AUS' connections with industry, corporate partners, donors and alumni by organizing tailored engagement opportunities and high-level briefings. These initiatives foster meaningful relationship building, encourage long-term partnerships, and create pathways for collaboration that benefit the AUS community and its stakeholders.

For more information about OAAA, please visit www.aus.edu/oaaa or contact the office at oaaa@aus.edu.

Architecture, Art and Design Facilities

College of Architecture, Art and Design (CAAD) students benefit from open studios and robust, state-of-the-art facilities. Students enrolled in studio majors are provided with dedicated individual worktables. Computer workstations with network connections are available for the foundations year students and most second-year students. Additional spaces, which are shared by all curricula, include exhibition galleries, a lecture hall, seminar rooms, a media wall, digital classrooms, high-end computing labs and comprehensive printing facilities. CAAD students and faculty also enjoy access to a variety of labs, which are among the most advanced facilities found in universities internationally. CAAD Labs cover a wide spectrum of making, both analog and digital, including conventional material fabrication as well as advanced digital technology. The labs are grouped into three categories: Digital Fabrication, Material Fabrication and Media Labs. Digital Fabrication Labs include CNC routers, industrial robotic arms, thermoforming, laser cutting machines and a number of 3D printers. Material Fabrication Labs include a comprehensive woodshop and metal shop, and ceramics studio. The Media Labs contain production spaces, editing suites, photography and printmaking studios, as well as a media equipment center.

Computer Learning Resources

Information Technology (IT) serves the computer-related administrative, instructional, technical and research needs of students, faculty and staff. It also acts as the university's gateway to the Internet for academic and administrative purposes.

Services provided include email, learning management system (Blackboard), online collaboration tools, online surveys, mobile applications, high-performance computing, wire/wireless network connections, support for financial, HR and student information applications, audio/video conferencing, data storage and backups, telephony, printing services and much more.

All classrooms are networked and equipped with technology that enable faculty members and students to enhance learning with digital and online content. Wireless network access is available in all dormitories and academic areas of the campus.

AUS departments and programs offer a range of specialized and general computer laboratories with software to support student work and research. Many of these software products are also remotely accessible to students using their own personal devices.

Additionally, the library features an information commons with an expanded range of computers, software and related technology along with support for students' research and other academic work.

Additional information can be found in the IT section of the university website.

Health Services

University Health Services (UHS)

University Health Services (UHS) provides primary health care services to all AUS students, faculty, staff members and their dependents. UHS is open Monday–Thursday from 8:30 a.m. to 4:30 p.m. and also provides 24-hour emergency care. Depending on the severity of the illness, patients are referred to a hospital for further treatment if required. Great emphasis is placed on making the campus a healthy and safe place to study, work and live by providing preliminary physical examinations to all students and employees as a mandatory part of the registration/employment process, followed by continued quality care throughout their time at AUS, including sport team fitness checks.

UHS is a Ministry of Health and Prevention licensed facility and is staffed with a qualified, licensed medical team, which includes general practitioners and registered nurses. On-site counseling services are also available (refer to University Counseling Services at the end of this section).

UHS is equipped with an observation room (daycare) to closely monitor patients for short stays before transferring to a hospital if required. UHS has access to an on-campus laboratory and pharmacy to assist in serving the AUS community. An ambulance is on standby 24 hours a day within University City.

Health Education Programs

As part of an educational institution, UHS plays an active role in educating the university community and promotes on-campus health and wellness activities throughout the academic year. UHS programs include awareness campaigns on health-related issues.

Health Coverage Plans for Students

All registered undergraduate students, including registered international students, must have a valid medical insurance coverage throughout their stay at AUS.

AUS offers students two health coverage plans coupled with a compulsory plan:

- Al Buhaira National Insurance Student Health Plan
- AUS Health Service Student Health Plan

Compulsory Plan:

- University Hospital Sharjah Supplemental Student Health Plan

As part of the registration procedures, every undergraduate student must enroll in one of the two health coverage plans, in addition to the compulsory plan, by the semester registration deadline to avoid incurring government fines at the time of UAE residence visa renewal. AUS will not be liable for any such fines. Students who fail to complete their insurance registration for Al Buhaira National Insurance Student Health Plan by the deadline will be placed on the AUS Health Service Student Health Plan. For health insurance plan registration details and other information, visit www.aus.edu/life-at-aus/health-and-wellness/university-health-services/student-health-insurance-plans.

Al Buhaira National Insurance Student Health Plan (ABNIC)

This plan is required for all students whose residence visa is sponsored by AUS, and for students who are not on AUS sponsorship and are not covered by private health insurance.

Students on this insurance can access the ABNIC health services network as well as AUS University Health Services.

University Health Services Medical Coverage (on-campus only)

This coverage provides access to AUS University Health Services for students who are not enrolled in Al Buhaira National Insurance Student Health Plan and have their own private health insurance. It also applies to UAE nationals.

University Hospital Sharjah Supplemental Student Health Plan

This coverage is for all students, except for those who have their own private insurance that covers University Hospital Sharjah.

Institute of Urban and Regional Planning and Design

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

Interactive Trading Floor

The Interactive Trading Floor (ITF) at American University of Sharjah is a technologically advanced 22-seat learning space designed to be the exact duplicate of the trading floor found in typical Wall Street or global investment firms, including the same live feeds, and company- and industry analysis supporting data such as Capital IQ, Thomson Reuters and state-of-the-art Bloomberg terminals.

The ITF allows students to apply analytical models and trading techniques to real time market data, thereby extending theory into practice. Assignments integrating live data, trading simulations, analytical assignments and practical cases as well as trading competitions are used to promote interactive learning and facilitate a profound understanding of the intricacies of financial markets.

Jafar Center for Executive Education

Located in the School of Business Administration, the Jafar Center for Executive Education (JCEE) provides a state-of-the-art facility with equipment and furnishings to support a variety of learning formats, including team activities, video conferences, lectures and seminars.

The mission of JCEE is to facilitate interaction between AUS faculty and the business community for the purpose of developing the leadership capacity of enterprises in the UAE and the wider region. Faculty interaction with business leaders also allows professors to take the needs of business and government back into the classroom with graduate and undergraduate students.

Laboratories

Engineering and Computing Laboratories

The College of Engineering has 65 laboratories. All equipment and instruments are accessible to and extensively used by students. Laboratory focus areas are presented below and may be reviewed in detail on the college's website.

Chemical and biological engineering laboratories focus on unit operations and process control, corrosion, environmental, petroleum, refining, water, materials, thermodynamics, fluid flow, heat transfer, process computer simulation and drug delivery.

Civil engineering laboratories contain equipment and facilities to support teaching and research in structural, geotechnical, geological, water resources and environmental engineering, construction materials, transportation systems and geographic information systems (GIS).

Computer science and engineering laboratories relate to programming, digital systems, microprocessors, very large-scale integration (VLSI), embedded systems, industrial computer applications, computer networks, software engineering, operating systems, databases, high-performance computing, Internet of Things (IoT) programming, machine and deep learning, virtual and augmented reality, mobile and Internet computing, and artificial intelligence (AI).

Electrical engineering laboratories focus on electronics, electric power, control, measurements, machines, communications and signal processing, antennas and microwave, and medical electronics. The department also has a class 10,000 clean room facility for testing microelectronic chips, an advanced EDA lab, a PCB fabrication laboratory, a drone manufacturing and design lab, and an electric vehicles lab.

Industrial engineering laboratories specialize in digital supply chain, simulation, augmented reality (AR), virtual reality (VR) and smart manufacturing. They are equipped with the latest software for optimization, simulation, layout design, CAD and CNC programming. Additionally, the department shares materials testing, as well as conventional and advanced manufacturing laboratories, with the Department of Mechanical Engineering.

Mechanical engineering has laboratories that contain the latest software in optimization, simulation, layout design, CAD and NC programming. The department has laboratories for advanced manufacturing, aeronautics, computer-aided engineering, control systems, dynamics and mechanical vibrations, engineering measurements, fluid mechanics, heat transfer, internal combustion engines, materials testing, mechatronics, refrigeration and air-conditioning, thermodynamics and renewable energy.

The various departments share eight computer labs with 274 stations. All labs have dedicated lab instructors and engineers. Additionally, all engineering facilities offer wireless connectivity.

Interpreting and Translation Laboratory

The Department of Arabic and Translation Studies has a purpose-built interpreting facility. It features simultaneous interpreting booths, a consecutive interpreting table, Internet access and equipment for simulated video teleconferencing.

Media Communication Studio and Creative Laboratories

Students in the Department of Media Communication gain hands-on experience using a state-of-the-art audio-visual studio for news presentations, talk shows, dramatic productions, social media content creation and multimedia journalism projects. They also have access to creative digital laboratories equipped with Mac workstations featuring industry-standard software for graphic design, video editing and animation.

Science Laboratories

The science programs benefit from up-to-date laboratories and equipment that provide a rich general and research laboratory experience for AUS students.

The biology laboratories are equipped with the latest light and phase compound microscopes, stereoscopes, laboratory refrigerators and freezers, CO_2 cell incubators, laminar flow hoods–cell culture facility, electrophoresis equipment, cryostat, microtome units, bone

densitometer, freeze drier, incubators, gel documentation system, UV trans-illuminator, refrigerated microcentrifuges, trans-blot semi-dry transfer apparatuses, gel dryer, tissue homogenizers, thermomixer, micropulser, class 2 safety cabinets, drying cabinets, hot air ovens, autoclaves, shaker incubators, orbital shakers, colony counters, pH meters, body composition analyzer, cryogenic storage system, shaking water baths, automated cell counters, Zeiss Axio Imager M2 fully motorized microscope scanning stage 3CCD Cam, UV-VIS spectrophotometers, NanoPhotometer, ELISA plate readers, C-digit blot scanner for Western blotting, thermocyclers and a real-time PCR system.

The chemistry, biochemistry and environmental sciences and sustainability laboratories are equipped with the latest sampling and analytical instrumentation including AA, GC-MS, UV-VIS, FT-IR, TOC, HPLC, UHPLC, IC, ICP-MS, ICP-OES, GC-TCD-FID, an elemental analyzer (CHNS analyzer), a 100 MHz NMR analyzer, a zeta potential analyzer, a rapid kinetic apparatus and a physisorption apparatus.

The physics laboratories are supplied with up-to-date standard equipment, including computer interfaces, motion sensors, current sensors, voltage sensors, magnetic field sensors, linear air tracks, photogates, smart timers, projectile launchers, ballistic pendulums, rotational systems, digitometer, electric field mappers, current balance apparatus, signal/function generators, oscilloscopes, a Hall effect apparatus, lasers, spectral lamps, photoelectric effect apparatus, Geiger-Muller tubes, radiation counters, h/e apparatus, Frank Hertz apparatus, e/m apparatus, spectrometers, interferometers, X-ray machines, a Millikan oil drop apparatus, heat engines/gas law apparatus, a thermal expansion apparatus and an adiabatic gas law apparatus.

Library

The AUS Library, an 11,000-square-meter state-of-the-art facility, provides collections, services and programs to support the curricular and research needs of the university community. The library has a collection of more than 135,000 items that includes reference materials, books, and magazines and scholarly journals. In addition to its print collections, the library provides access to over 950,000 e-books, thousands of electronic journals and more than 90 online databases. An online library management system can be used to search for library materials from any location on or off campus. Using the library website, students and faculty can access e-books, online databases, full-text journals and other digital resources.

Library facilities include group study rooms, quiet study areas and media viewing rooms. The library offers hands-on information literacy classes to teach students research skills, and qualified librarians are available via email or for individual consultations. The library works in conjunction with all parts of the university to provide academic resources for all classes taught at AUS.

The library's website is available at http://library.aus.edu.

Office of Strategic Communications and Marketing

The Office of Strategic Communications and Marketing (SCM) leads the development and implementation of a unified communications and marketing strategy that strengthens AUS' reputation and visibility locally, regionally and internationally.

Aligned with the university's vision, mission and strategic directions, the office drives AUS' short- and long-term marketing objectives and ensures clear, consistent and effective communication with key stakeholders.

SCM works closely with university leadership to advance AUS' institutional ambitions by:

- supporting all aspects of the university's institutional advancement and brand positioning
- managing AUS' media, digital, print and electronic communications to inform and engage internal and external audiences
- ensuring campuswide coordination of communications processes, standards and messaging

Research

Research Services

The Office of Research Services (ORS) at AUS provides comprehensive support across the full research lifecycle, from funding development and proposal submission to project management, compliance and research translation. The office plays a central role in enabling high-quality research by supporting faculty and students through integrated services, funding opportunities and effective research administration.

ORS supports the identification of funding opportunities, the development of competitive proposals and the management of both externally and internally funded research projects. This includes budget development, contract negotiation, financial oversight, reporting and deliverable tracking, ensuring alignment with institutional policies and sponsor requirements.

Research support at AUS is organized through two core functional areas. The **Office of Grants and Contracts** manages externally funded research, providing end-to-end support from proposal development through post-award administration, including financial and award management, as well as compliance with sponsor requirements. The **Office of Internal Programs and Research Impact** oversees internally funded initiatives, including undergraduate research grants that provide students with hands-on experience in faculty-led research and creative inquiry.

These activities are supported by integrated research management systems that streamline proposal, award, compliance and reporting processes, providing efficient and transparent tools for researchers.

ORS ensures that all research is conducted to the highest ethical and regulatory standards. Through its Research Ethics and Compliance function, the office oversees research involving human and animal subjects, manages the Institutional Review Board (IRB) and supports researchers in preparing ethical review documentation in compliance with UAE regulations and international standards.

Within ORS, the **Technology Management Office** is responsible for intellectual property and research commercialization. The office supports the evaluation, protection and management of research outputs, working closely with the research community to assess commercial potential and manage the institutional IP portfolio. It facilitates engagement with industry partners to enable technology licensing, collaborative development and start-up formation, while providing training and outreach to support invention disclosure and the translation of research into practical applications.

Together, these integrated services create a unified framework that empowers the AUS research community to pursue well-managed, innovative and impactful research.

Intellectual Property

AUS maintains a clear policy governing the ownership, protection and commercial development of inventions, discoveries and creative works produced by faculty, staff and students. The university generally retains ownership of intellectual property developed using significant institutional resources or through externally sponsored projects.

The policy also defines specific exemptions for creator-owned scholarly works, such as textbooks and theses, and ensures that inventors share in the benefits of successful commercialization.

For further information on IP disclosures, commercialization support and upcoming workshops, please visit www.aus.edu/research or contact ors@aus.edu.

Research Infrastructure

AUS offers a comprehensive and advanced research infrastructure that supports high-quality graduate education and interdisciplinary research. The university's laboratories are equipped with advanced instrumentation supporting a broad spectrum of experimental and applied research. These include facilities for materials characterization, advanced manufacturing and additive manufacturing, smart infrastructures, mechanical testing, microscopy and imaging, spectroscopy platforms and precision laser processing systems, alongside dedicated facilities for chemical and biological analysis, as well as civil, electrical and environmental testing. Research activities are supported by well-structured operational frameworks designed to ensure accessibility, efficiency and safety.

Shared laboratories and core facilities are accessible to AUS students through a centralized lab booking system, which allows users to reserve equipment and workspace in an organized and transparent manner. Access to laboratories is controlled and granted only to authorized and trained users, ensuring proper use of specialized equipment and maintaining the integrity of research environment. Dedicated technical staff are available to provide guidance, ensure compliance with safety standards, and support day-to-day research activities.

In addition to its physical laboratories, AUS provides graduate students with access to advanced resources through its strategic collaboration with Amazon Web Services (AWS). This infrastructure enables scalable, on-demand access to powerful CPU and GPU computing environments, supporting data-intensive research in areas such as artificial intelligence, scientific simulation and advanced modeling. The AWS-based HPC environment allows students to run large-scale simulations, train machine learning models and process complex datasets with high efficiency, significantly reducing computational limitations and accelerating research outcomes.

Research Centers

AUS has established a number of research centers as part of its commitment to research and community outreach. Brief descriptions of these centers are provided below. More detailed information and updates are available at www.aus.edu/research.

Materials Research Center (MRC)

The Materials Research Center (MRC) provides state-of-the-art infrastructure for the design, synthesis and testing of high-performance functional materials. It offers academic and industrial partners access to advanced instrumentation, fabrication services and training programs to enable impactful materials research. MRC plays a central role in supporting students by providing hands-on training on advanced research instrumentation, enabling them to develop practical skills that complement their academic learning. The center also offers mentorship and technical guidance, helping undergraduate and graduate students design experiments, interpret data, and carry out high-quality research projects that prepare them for careers in academia and industry.

Energy, Water and Sustainable Environment Research Center (EWSERC)

The Energy, Water and Sustainable Environment Research Center (EWSERC) is committed to advancing world-class research addressing global challenges in energy, water, and environmental sustainability. The center's work supports key UAE strategic plans, including UAE Net Zero 2050, UAE Energy Strategy 2050, and the UAE Water Security Strategy 2036.

Center for Entrepreneurship, Innovation and Sustainable Development (CEISD)

The Center for Entrepreneurship, Innovation and Sustainable Development (CEISD) is a multidisciplinary center that collaborates with strategic partners to translate student and faculty innovations into marketable solutions. It supports entrepreneurial students, alumni and faculty in accessing and leveraging Sharjah's innovation ecosystem and the broader UAE landscape.

Center for Arab Studies and Islamic Civilizations (CASIC)

The Center for Arab Studies and Islamic Civilizations (CASIC) fosters interdisciplinary research on the Arabic language, heritage, history, arts, and cultures of the Arab and Islamic worlds, aligned with the strategic priorities of Sharjah and the UAE. The center is committed to talent development, academic collaboration, and community engagement through research initiatives, public programs, and outreach activities.

Sustainability

AUS is a proactive advocate for the pivotal role that higher education institutions play in championing sustainability and climate action through education, research and operations. As such, sustainability is a core component of AUS' vision and mission, embedded in the AUS Strategic Plan and every aspect of campus life. With 95 percent of its academic departments offering at least one sustainability-inclusive course, AUS equips students with the right academic knowledge to impact various industries and help move them toward a greener future. Beyond the classroom, AUS offers a wide range of sustainability-related extracurricular activities, such as the AUS EcoRep Program and the AUS Green Living Challenge, which promote waste reduction, energy conservation, and personal health.

Sustainability is a shared responsibility embraced across the university's student community. Through dynamic programs, peer-led initiatives and hands-on experiences, AUS students play a central role in promoting environmental and social responsibility on campus and beyond. Whether leading awareness campaigns, participating in global conferences, or collaborating with peers through clubs and academic associations, students are at the forefront of driving meaningful, lasting change in support of the UN SDGs. Their passion and leadership are key to shaping a more sustainable future—one initiative at a time.

For more information on student opportunities for sustainability leadership at AUS, visit www.aus.edu/sustainability.

Testing Center

The AUS Testing Center serves as a primary testing hub for both the AUS campus and the wider community.

The center administers placement tests for newly admitted AUS students, supports general university testing and offers a range of internationally recognized and vocational examinations. The center also provides proctoring services for external tests, including distance-learning examinations.

The Testing Center is staffed by professional, trained proctors certified by ETS and Pearson VUE®. It is an authorized TOEFL iBT Test Center and a Pearson VUE® Authorized Test Center (PVTC Select). AUS' principal testing partners include ETS, AMIDEAST, the British Council, the College Board and NCEES.

Tests offered include the Institutional TOEFL (ITP), the Internet-based TOEFL (iBT), the paper-based IELTS, the computer-delivered IELTS, the Digital SAT, the Fundamentals of Engineering (FE) exam, the Principles and Practice of Engineering (PE) exam, and International Information System Security Certification Consortium (ISC)² examinations.

For inquiries about the AUS Testing Center, please contact +971 6 515 1000, email testingcenter@aus.edu or visit www.aus.edu/testing-center.

University Sports Facilities

Student Athletics and Recreation manages the sports facilities, including the Sports Complex and the Sports Pavilion. The Sports Complex consists of indoor facilities such as basketball, squash and volleyball courts; multipurpose halls; a 50-meter swimming pool; saunas; fitness centers with free weights and exercise machines; an aerobics hall and a multipurpose hall for table tennis/martial arts. Outdoor sports facilities include the Sports Pavilion, a 400-meter running track, a soccer field, a cricket ground, a cricket practice net, a beach volleyball court and a baseball field. The AUS Tennis Center is equipped with basketball, padel and tennis courts.

The AUS Sports Facilities are to benefit the entire AUS community. Students, staff, faculty members and their dependents enjoy free usage of these facilities. Details on the AUS sports facilities are found in the *Student Handbook,* available at www.aus.edu/student-handbook, and at www.aus.edu/osa/athletics. Interested AUS community members can also visit the Sports Complex reception or call +971 6 515 2778.

Student Life on Campus

Cultural Events

The Performing Arts Program presents a wide array of student productions in theatre, dance and music in the Arts Building rotunda or in the Main Building auditorium.

For more information, visit www.aus.edu/cas/performing-arts-program or email pap@aus.edu.

Office of Student Experience

The mission of the Office of Student Experience (OSE) is to provide high-quality services and programs facilitating informal learning that is in congruence with the Middle Eastern culture; complements formal learning; and promotes aesthetic, ethical, intellectual, personal, social and talent growth in a safe environment.

OSE provides a host of out-of-class learning opportunities in extracurricular areas for students to engage and develop the student life experience at AUS. Student Experience transforms student life with a purpose, engaging students in activities that facilitate their holistic development. Student involvement in OSE-initiated activities enables them to accomplish their personal and educational goals. Students are engaged in diverse programs, activities and events and provided services through One Stop–The AUS Solution Center, Student Athletics and Recreation, Student Engagement and Leadership, Student Clubs and Organizations, Community Services and Outreach, On-Campus Student Employment, Student Leadership Program, Student Residential Life, and Student Conduct and Conflict Resolution. The Office of Student Experience is led by the Vice Chancellor for Student Experience.

More information on Student Experience is available at www.aus.edu/life-at-aus/student-life. Students can also visit the Office of the Vice Chancellor for Student Experience (M 217 on the Second Floor of the Main Building), call +971 6 515 2166/2216 or email studentexperience@aus.edu.

One Stop - The AUS Solution Center

One Stop - The AUS Solution Center is a centralized hub for various student services and resources, saving time and effort for students and their parents in finding answers and solving problems. One Stop is staffed by knowledgeable, trained professionals who are dedicated to assisting students.

One Stop plays a vital role in supporting student success by providing convenient access to essential services and resources, streamlining administrative processes, and promoting student engagement and empowerment. These services include, but are not limited to, Student Accounts, Financial Aid and Scholarships, Transportation, Admission, IT Service Desk, and Student Residential Life.

For more information, visit www.aus.edu/onestop.

Student Athletics and Recreation

The Office of Student Experience offers students many opportunities to develop their abilities in a variety of sports. Full-time and part-time coaches and trainers in Student Athletics and Recreation help develop students' fundamental skills in athleticism, strength and conditioning, and overall sportspersonship, as well as support and encourage students to adopt a disciplined and healthier approach to sports. AUS offers a variety of individual and group fitness classes, general leisure activities and a broad base of competitive and recreational programming. For more information, visit the Sports Complex reception or www.aus.edu/osa/athletics or call +971 6 515 2778.

The university's intramural sports program complements students' academic, social and cultural education. Involvement in intramural sports activities reduces stress, promotes team bonding and provides an excellent opportunity for students to socialize.

Student Athletics and Recreation also offers students the opportunity to participate in local, regional and international intercollegiate sports tournaments.

Student Center

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

The Student Center is more than just a place for students to socialize and relax; Student Engagement and Leadership's offices are located at the center to provide students with non-academic support services and facilities under one roof. The Student Center provides a wide array of amenities and facilities. These include an information desk, a meeting room, club workstations, Men's and Women's Lounges, a TV lounge, a floating theatre and multipurpose rooms.

Student Engagement and Leadership manages the Student Center facilities and all events and activities that take place at the center throughout the year. For more information about the Student Center call +971 6 515 2716.

Student Conduct and Conflict Resolution

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 principles, rules and regulations of the university constitute the basic standards and guidelines for conduct on and off campus. The Office of Student Experience (OSE) establishes and enforces those rules and regulations. The full text of the Student Code of Conduct is provided in the *Student Handbook*, available at www.aus.edu/student-handbook.

As part of OSE, Student Conduct and Conflict Resolution is responsible for educating students about their rights and responsibilities, creating awareness within the AUS community about the Student Code of Conduct, and implementing the code in a fair and consistent manner. Allegations of misconduct under the Student Code of Conduct are resolved by Student Conduct and Conflict Resolution in a manner consistent with the core values of fairness, honesty and integrity. Student Conduct and Conflict Resolution also offers mediation services, which assist students in resolving conflicts through

mediation. Students are trained in mediation and awarded a certificate on successful completion of mediation training and mock sessions. Student Conduct and Conflict Resolution is located on the first floor of the Student Center in offices A210, A214-216.

For more information, please refer to the *Student Handbook,* available at www.aus.edu/student-handbook.

Student Engagement and Leadership

Student Engagement and Leadership promotes students' intellectual growth, skills and all-round personality development by engaging them in registered student organizations, volunteer programs, on-campus student employment, and varied events and activities locally, regionally and internationally. Student Engagement and Leadership offers resources and services that aid student participation and development and builds university reputation through student achievements.

For more information, please see the *Student Handbook,* available at www.aus.edu/student-handbook, or visit the Student Engagement and Leadership office in the Student Center (office A223).

Community Service and Outreach

Community Service and Outreach (CSO) is a division of Student Engagement and Leadership under the Office of Student Experience. CSO offers AUS students the opportunity to get involved in social service and supporting charities. CSO goals go hand in hand with those of the Office of Student Experience to facilitate the cultural, social and intellectual development of students. CSO aims to nurture responsible and effective individuals through its activities. It is the link between students and the various needs of society. It coordinates a variety of volunteer programs and encourages students to contribute toward the development of new ones. Current volunteer programs are listed in the Student Life section of the university website (www.aus.edu/life-at-aus/student-life/community-involvement/cso-programs-and-events) and in the *Student Handbook*.

Students who are interested to learn more about volunteer opportunities can visit Community Service and Outreach in the Student Center (office A239), call +971 6 515 2794 or email osacom-services@aus.edu.

On-Campus Student Employment

Opportunities for on-campus employment are available to all AUS students. Student employees may work for a maximum of 20 hours per week with a maximum of 80 hours per month. During academic breaks and in the summer terms, students may work for up to 40 hours per week or a total of 160 hours per month. Hourly rates vary depending on the department and the type of work assigned.

In addition to working in the university departments and campus outlets and facilities, students can work voluntarily off campus during exhibitions and important events in the UAE.

Further information on all campus employment opportunities is available through the On-Campus Student Employment office in the Student Center (office A224), at www.aus.edu/on-campus-student-employment, or via the AUS Career portal at https://aus-csm.symplicity.com.

Student Clubs and Organizations

Student-sponsored organizations are an integral part of the learning process at AUS. The academic experience is enriched by participation in activities that allow students to pursue their personal interests outside the classroom while providing opportunities for leadership development and for involvement in university life.

Student Engagement and Leadership is the central support for the numerous student organizations on campus. Its role includes supervising and providing assistance with program planning and implementation.

The student organizations at AUS span a wide range of interests and reflect the varied cultural backgrounds of AUS students. Cultural, interest-oriented and academic association clubs organize numerous professional and cultural activities throughout the academic year and play a vital role in fostering a rich multicultural environment on campus. For a list of student clubs, visit www.aus.edu/life-at-aus/student-life/clubs-and-organizations.

For more information about student clubs and organizations, please email seld@aus.edu.

Student Council

His Highness Sheikh Dr. Sultan bin Mohammed Al Qasimi strongly encouraged AUS students to establish a Student Council in order to ensure student representation on campus.

The AUS Student Council is an elected body that articulates undergraduate students' views and interests in the university. The Student Council is dedicated to the continuous development and welfare of AUS undergraduate students. The Student Council is a vehicle for ensuring that undergraduate students can have a voice in formulating university priorities and policies. It provides support for the various student organizations and clubs, offering guidance, in an attempt to build a generation that is established on the notions of teamwork, dedication and responsibility.

The Student Council is the executive authority of the Student Union, consisting of 15 executive officers elected through campus-wide elections and four appointed committee members. The Student Council follows its constitution and by-laws in decisions made by members and the council. The constitution and by-laws are written and amended by the Student Council and approved/endorsed by the Vice Chancellor for Student Experience and the Chancellor. The Vice Chancellor for Student Experience advises the Student Council.

For information, please see the *Student Handbook*, available at www.aus.edu/student-handbook, visit the Student Council office in the Student Center (office A108) or visit www.aus.edu/student-council.

Student Leadership Program

Student Leadership Program (SLP) is a division of Student Engagement and Leadership that recognizes leadership as an important aspect of a complete college education. SLP offers a wide range of opportunities for students to develop their leadership, personal and communication skills, and prepares them for a lifelong commitment to leadership and good citizenship.

SLP engages students in local, regional and international conferences and Model United Nations simulations that aid in the development of character, public speaking skills, confidence, mindset and overall leadership capabilities. Students can choose to get involved in programs such as the Peer Leaders Program, Women's Leadership and Enrichment Program, and the Youth Leadership Training Program. They can also participate in the AUS Student Lecture Series and attend workshops under the Student Training and Workshop Series.

For more information, visit office A227 in the Student Center, go to www.aus.edu/life-at-aus/student-life/leadership-program, email osaslp@aus.edu or call +971 6 515 4774.

Student Residential Life

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

Living in the residential halls is a positive educational experience and students are encouraged to live on campus. Living on campus complements the overall learning experience by fostering independence and tolerance of others. Furthermore, living on campus allows students to make the most of what AUS has to offer, such as sports and dining facilities, the library and laboratories; it also gives students convenient access to the many activities that take place during the day and in the evening. The university offers convenient bus service between the residential halls and other areas on campus. For more information about the services and facilities in the residential halls, see www.aus.edu/residential-halls.

Safety and security are top priorities. Security patrols, surveillance cameras, secure entry systems, and professional staff are all available around-the-clock.

First-year students are assigned designated halls for women and men to foster a sense of community and provide an environment conducive to their success. This arrangement allows students to connect with like-minded peers, building friendships and support networks. Additionally, these halls offer tailored programs designed to address the specific needs of each group, ensuring a smooth and positive transition into university life.

The Residential Hub serves as a central gathering place for all the residential students to study and connect with fellow residents. It also serves as a welcome center for parents to meet and catch up with their resident student. Additionally, the Hub is used for events organized by the residential halls team.

A residential curriculum is set by Student Residential Life Department (SRLD) to help students achieve personal development, academic success and community engagement. SRLD is committed to promoting academic success through various means including sharing common interest through programs that cater to students' academic, personal and social growth, monthly reminders about policies and procedures.

Regulations for the residential halls are available in the *Student Handbook,* available at www.aus.edu/student-handbook, and at www.aus.edu/residential-halls.

Students with Disabilities/Students of Determination

AUS students who require support due to disabilities should contact the Academic Support Center at asc@aus.edu. Please also refer to the Academic Support Center section hereafter.

Student Educational Services

AUS offers a broad range of educational services to support student learning. Details of these services and how to avail them are provided herein. As the university provides authorized support services, external tutors are not permitted on campus.

Academic Support Center

Academic Coaching

The Academic Support Center (ASC) provides academic coaching to all undergraduate students, helping them achieve academic success at AUS. Through a collaborative, dynamic, and trusting program, academic coaches at ASC teach students to take responsibility for their education, enhance their skills and personal resilience, set academic goals, graduate in a timely manner and successfully meet all requirements for quality education at AUS. Academic coaching sessions at ASC cultivate an empowering, inclusive, caring, respectful and professional environment to create conditions for growth as students take ownership of their educational experience. ASC helps students build their core academic soft skills and become lifelong learners.

ASC academic coaches utilize a diverse range of coaching tools and theories, such as developmental coaching, strengths-based coaching, brain-based coaching and prescriptive coaching. ASC offers several modes of engagement with students, including one-on-one academic coaching, peer mentoring and student success workshops.

For more information about the Academic Support Center and the various services it offers, visit www.aus.edu/academics/asc or email asc@aus.edu.

Academic Accommodations for Students with Disabilities/Students of Determination

AUS adheres to the Americans with Disabilities Act (ADA) definition and guidelines for disabilities, is a member of the Association on Higher Education and Disability (AHEAD), and follows the UAE Federal Law 29 of 2006 when it comes to students with disabilities/students of determination. The Academic Support Center offers students with disabilities academic accommodations, to the extent permissible by available resources, to allow all students equal educational, cultural and social opportunities at AUS.

For details, visit www.aus.edu/life-at-aus/empowering-every-student-accessibility-support.

Academic Thrive Program

ASC conducts an Academic Thrive Program (ATP), which is dedicated to students on academic probation. It provides them with extra support and skills development training required for academic progression and success.

Through ATP, students have mandatory probationary advising appointments with ASC academic coaching. Students also get academic consultation, take a Learning and Study Strategies Inventory (LASSI) test, and work on a personalized academic success plan. ASC academic coaches work with academic probation students to increase their academic and personal skills and resilience to help them return to good academic standing.

First Year Experience

The First Year Experience (FYE) program seeks to enable first-year students to discover their potential and engage in a learning experience that empowers intellectual and interpersonal growth. The focus of the FYE is to support first-year students transition better and succeed at university, help them develop an increased awareness of available campus resources, identify strategies for effective time management, demonstrate a deeper understanding of essential study skills for success at AUS, create goals to improve self-care and wellness and engage in meaningful interactions with the AUS community.

For more information, visit www.aus.edu/fye or email fye@aus.edu.

Peer Mentorship Sessions

ASC Peer Mentors are academic achievers at AUS or students who have struggled academically and then managed to turn this experience into success. They use first-hand experience to advise fellow undergraduate students. Peer Mentors can recommend strategies for success in their specific college/school at AUS and answer questions from a student's perspective.

Proactive Academic Intervention

ASC identifies students who can be potentially at-risk academically and proactively reaches out to those students to provide all the support they may require to avoid being in academic jeopardy. This is done in collaboration with AUS faculty.

Student Success Workshops

ASC offers a variety of Student Success Workshops (SSW) that are available to all undergraduate students. These interactive workshops cover a variety of topics, ranging from AUS essentials to self-care. SSW help students master some of the most fundamental concepts for academic learning and lifelong success. By attending more SSW, AUS students can also

progressively earn a FYE Pathway certificate, Advanced certificate, and Expert certificate.

Undeclared Advising

ASC recognizes that it is quite common for students to feel uncertain about their intended major or program or to reconsider their academic interests after starting university. All ASC academic coaches are certified to administer and discuss the Strong Interest Inventory (SII) test, a career exploration and planning tool designed to uncover individual interests and work preferences. They can assist students in identifying their strengths and selecting programs that best align with their goals.

Biology, Chemistry and Environmental Sciences Learning Center

The Biology, Chemistry and Environmental Sciences Learning Center (BCELC), located in room CHM-117 of the Chemistry Building, offers tutoring for students enrolled in biology, chemistry, biochemistry, and environmental sciences and sustainability courses. Tutors help students improve their scientific skills and understanding of the science courses offered to all AUS students. Tutors are available to help explain concepts and assist in solving scientific problems to help ensure that students fully understand the course material and are well prepared for examinations. One-on-one as well as group tutoring sessions are available on a drop-in and booking basis.

Students may drop in or book sessions to seek an understanding of certain course-related concepts. The booking page is shared with all students via email at the beginning of the semester, via an Instagram page (@BCE_Learning) or via scanning a QR code posted at the entrance of the BCELC. The BCELC also offers review sessions prior to exams upon request. Students can request extra appointments, review sessions, or submit their enquiries via email (bcelearningcenter@aus.edu).

Engineering Learning Center

The Engineering Learning Center (ELC) provides peer-to-peer support to engineering students. It offers students additional assistance in their coursework beyond regular class hours and allows them to explore diverse viewpoints when addressing their academic uncertainties.

For more information, email cen-learningcenter@aus.edu.

Mathematics Learning Center

The Mathematics Learning Center (MLC), located in the New Academic Building room NAB 239A and the Library building room LIB 118, provides one-on-one tutorial sessions for students enrolled in all remedial and 100-level mathematics courses. The tutors are well-trained senior undergraduate and graduate students.

Students may drop in for consultation during the weekly scheduled sessions to seek an understanding of certain course-related concepts. Consultation does not cover specific homework or project-related questions. The MLC also offers review sessions prior to the exams, on need basis.

Students can request appointments with the tutors or submit their enquiries by email to cas-mlc@aus.edu.

Study Abroad

The International Exchange Office (IXO) works with AUS students who wish to study at universities in other countries either for a semester or for one academic year. For information on study abroad opportunities for AUS students, please see the section entitled AUS Students Studying Abroad under Registration and Course Information in the Academic Policies and Regulations section of this catalog.

The office also facilitates the admission of exchange or visiting students coming to AUS to study abroad for a semester or up to one academic year. For more information on study abroad students' admission to AUS, please see the Other Admission Categories section in Admission to Undergraduate Studies later in this catalog.

In addition to facilitating student exchanges and study abroad, IXO also administers processes enabling faculty-led study tours, visiting guests-in-residence (VGiR), visiting guests and delegations, and tuition exchange programs. IXO also works closely with embassies and consulates to support global mobility initiatives and strengthen international partnerships, including collaborations with key industry partners to enhance experiential learning and global exposure for students.

For more information, visit www.aus.edu/ixo.

University Counseling Services

University Counseling Services (UCS) provides psychological services that are designed to help students explore a variety of personal and academic concerns. Common issues that lead students to seek support include adjusting to university life, identity concerns, relationship conflicts, anxiety, depression, grief and loss.

Counseling

UCS counselors are prepared to deal with a multitude of issues or concerns and encourage students to identify personal goals and help them develop coping skills and generate solutions for current difficulties.

Counseling is strictly confidential. The information shared with a counselor will not be disclosed to another individual or organization without the written consent of the student. Services are free, voluntary and available to all undergraduate and graduate students currently enrolled at AUS.

Students can schedule appointments at ucsappointments.aus.edu.

Further details are available at www.aus.edu/life-at-aus/student-life/student-support-services/counseling-services.

Self-Help Resources

UCS has extensive self-help resources on many subjects in the form of handouts, books, videos and links on its section of the university library website at https://aus.libguides.com/well-being. Topics include coping with stress, depression, sleep disturbance, loneliness, anxiety, eating disorders, grief and loss, substance abuse, relationship building, assertiveness, career choices, study skills, concentration and memory, motivation, time management, and test-taking strategies.

Writing Center

The AUS Writing Center, located on the ground floor of the Library (LIB 024), supports students in becoming independent and confident writers. Open to all AUS students, the center provides one-on-one writing consultations by appointment or on a drop-in basis. Sessions are available face-to-face in LIB 024 and online, and both formats operate from 10:00 a.m. to 5:00 p.m. During a consultation, students can work with a tutor on any stage of the writing process, including developing a thesis, organizing ideas, outlining, strengthening paragraphs, or improving vocabulary, sentence structure and mechanics. Students are also welcome to bring drafts to revise, conduct research or focus on particular aspects of their writing with a tutor's support. In addition to consultations, the Writing Center offers workshops on a range of writing topics throughout the academic year.

For more information, visit www.aus.edu/cas/writing-center.

English Bridge Program

Coordinator

Jessica March

Mission Statement

The English Bridge Program, housed in the Department of English at American University of Sharjah, will improve student readiness for matriculation into their majors and for the rigors of an academic program of study in higher education. The program enables students to increase their language proficiency to a level suitable for study in courses taught in English and to enhance their personal, academic and study skills to maximize the likelihood of success in their university experience.

For more information, please contact:

English Bridge Program
American University of Sharjah
Tel +971 6 515 2653
englishbridge@aus.edu
www.aus.edu/cas/englishbridge

Admission and Placement

Applicants to AUS who do not attain the minimum TOEFL/IELTS scores but who otherwise meet AUS admission standards may be admitted to the English Bridge Program, provided they have achieved one of the following scores:

- a minimum of 72 or a new score of 4 on the Internet-Based TOEFL (iBT) or
- a minimum of 543 on the AUS Institutional Paper-based TOEFL (ITP) or
- a minimum overall score of 6.0 on the IELTS (Academic Version)

Placement in either ELP 221 or ELP 232 is determined by scores on the TOEFL, IELTS or Bridge Placement Test (BPT).

Program Structure

The English Bridge Program (EBP) offers English language study courses, including integrated instruction in reading, writing, grammar, listening and speaking. Students in the Bridge Program must complete two EBP courses (minimum of 12 contact hours):

- ELP 211 Academic Literacy and
- ELP 221 Communication or
  ELP 232 English for Grammar and Writing Success

English Bridge Program students have the option to enroll in one undergraduate-level course in the College of Arts and Sciences (CAS) from an approved list of courses: MDC 101, ARA 101 (Arabic-language sections), ARA 102 (Arabic-language sections), MTH 100, MTH 102, MTH 103 and MTH 111. Course prerequisites must be met.

Registration in undergraduate-level CAS courses in a given semester is conditional upon being registered in English Bridge Program courses (see Course Withdrawal later in this section). For details about CAS undergraduate-level courses, refer to the course descriptions in the College of Arts and Sciences section within Undergraduate Course Descriptions later in this catalog.

Duration of Study

The English Bridge Program is a one-semester program. Students registered in this program must complete their studies in a maximum of one semester.

Academic Integrity

All English Bridge Program students should refer to the AUS Student Academic Integrity Code found in the Academic Policies and Regulations section of this catalog.

English Bridge Program Credit and Contact Hours

For information on credit hours and contact hours of English Bridge Program courses, please refer to the English Bridge Program's course descriptions hereafter. For information on credit hours and contact hours distribution of courses offered by the College of Arts and Sciences that English Bridge Program students are eligible to register for, refer to the course descriptions of these courses in the College of Arts and Sciences section within Undergraduate Course Descriptions later in this catalog.

After matriculation, grades earned in 100-level CAS courses completed within the context of the English Bridge Program count in the student's undergraduate cumulative GPA (CGPA). Credits hours earned in the CAS courses may count toward a student's undergraduate degree program graduation requirements. For details, refer to the corresponding degree program section later in this catalog.

Placement into EBP Courses

Students will be enrolled in ELP 211 and either ELP 221 or ELP 232 based on their English proficiency scores. Students will be enrolled in ELP 232 if they obtain one the following:

- a minimum score of 6.5 on the IELTS Listening Test
- a minimum score of 54 on the TOEFL ITP or 4.5 on the TOEFL IBT
- a minimum score of 19 on the Bridge Program Placement Test

Attendance and Lateness

English Bridge Program students are required to follow the undergraduate policy on course attendance and lateness. Please see Attendance and Lateness in the Attendance, Withdrawal and Interruption of Studies section under Academic Policies and Regulations later in this catalog.

Course Withdrawal

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

Students who withdraw from an ELP course will not meet the requirement for matriculation into an intended undergraduate degree program through the EBP exit criteria. English Bridge Program students cannot withdraw from the English Language Program (ELP) courses and maintain enrollment in the CAS course.

Matriculation into Undergraduate Studies

To matriculate into their intended undergraduate degree program, students in the EBP must meet one of the following two criteria:

- pass ELP 211 and (ELP 221 or ELP 232)
- provide a TOEFL/IELTS score meeting the minimum university English proficiency requirements for admission to undergraduate degree programs

Students who meet the matriculation requirements must take the AUS English Placement Test (EPT) to determine placement in WRI 001 or WRI 101 as matriculated students.

Course Descriptions

ELP 211 Academic Literacy (9-0-0). Enhances the ability to write and read academic English at an upper-intermediate level. Develops strategies to think critically and to demonstrate accurate grammar, vocabulary and mechanics for university-

level paragraphs and essays. Prerequisite: admission to the English Bridge program.

ELP 221 Communication (3-0-0). Focuses on developing speaking and listening skills at an upper-intermediate level. Develops fluency to participate coherently in discussions and deliver oral presentations. Enhances the ability to listen critically to understand spoken English in a variety of academic contexts. Restricted to English Bridge program students. Prerequisite: placement into ELP 221.

ELP 232 English for Grammar and Writing Success (3-0-0). Provides the context to develop academic English reading, writing, listening and speaking skills through targeted grammar instruction and practice for more accurate and precise communication in productive language. Builds foundational accuracy for a spectrum of English proficiency assessments. Restricted to English Bridge program students. Prerequisite: placement into ELP 232.



Admission to Undergraduate Studies

American University of Sharjah places special emphasis on quality education. Applicants are considered based on their qualifications regardless of race, color, gender, religion, disabilities, age, national origin, or marital or maternity status. The most qualified candidates are selected to fill the available places.

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

The university requires regular attendance at all classes. Students are not permitted to pursue AUS undergraduate degrees through correspondence or by merely passing university examinations.

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

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

Application Process

Admission to all AUS undergraduate programs is processed through the Office of Enrollment Management/ Undergraduate Admissions. Applicants should address their inquiries and subsequent correspondence to:

American University of Sharjah
Office of Enrollment Management
Undergraduate Admissions
PO Box 26666, Sharjah, UAE
+971 6 515 1000
infodesk.aus.edu

To apply to undergraduate studies at AUS, applicants must:

- complete the online application for applicants to undergraduate studies (www.aus.edu/apply) by the deadlines specified in Application Deadlines later in this section
- upload clear scans of the required supplemental documents (details available at www.aus.edu/general-required-documents). Transfer applicants must also submit an official university transcript along with the course descriptions and syllabi of all the courses they are seeking to transfer
- submit their SAT (Math) score (for applicants with an American-style high school diploma)
- submit their TOEFL or IELTS score report. For the required minimum scores, see the Minimum Admission Requirements section hereafter.
- pay the application fee

Admitted applicants are required to take placement tests, as applicable to the major they are applying to (refer to the Required Placement Tests table later in this section). TOEFL, IELTS scores, as well as grades achieved on advanced level courses/subjects or transfer of credits for college/university subjects may exempt the applicant from certain placement tests. For more details on first-year admission, refer to the Pre-Entry Requirements for First-Year Students/Exemption from Placement Tests section; for transfer admission, refer to Transfer Admission/Admission requirements and to Transfer Admission/Pre-entry Requirements for Transfer Students later in this catalog.

The Office of Enrollment Management/ Undergraduate Admissions will notify the applicant of the university's final decision.

The UAE Ministry of Higher Education and Scientific Research requires all applicants to obtain a Certificate of Equivalency for their secondary education credentials.

Custody of Admission Records

All transcripts and other documents applicants submit at the time of application or during file completion are the property of AUS, and, as such, are part of the applicant's digital file. The university is not required to provide (or allow the making of) copies of these documents. Transcripts submitted to AUS for admission or transfer of credit hours cannot be returned to the applicant or forwarded to other institutions.

First-Year Admission

Minimum Admission Requirements

Admission to AUS is competitive. Candidates are encouraged to apply early, before the published deadlines, to ensure they are considered for admission.

The minimum average required for admission consideration is the equivalent of 85 percent or above in the final year of secondary school (depending on the education system), or 85 percent or more in the best two out of the last three years of secondary school. This average is used as a guideline; it can vary based on several factors. These factors include the:

- secondary education scores
- college/major of interest
- SAT (Math) score (if applicable)
- number of qualified applicants
- availability of seats
- English proficiency test scores

Furthermore, in order to be admitted to an AUS college/school, applicants must obtain a minimum score of:

- 4.5 on the Internet-Based TOEFL (iBT) (equivalent to 80 on the previous scale) or
- 550 on the Institutional Paper-based TOEFL (ITP) taken at the AUS Testing Center or at AMIDEAST offices, or
- 6.5 on the academic IELTS

Applicants who do not attain the required TOEFL or IELTS score but who otherwise meet AUS admission standards may be admitted to the English Bridge Program at AUS. Please refer to the English Bridge Program section earlier in this catalog. For information on matriculation into the chosen field of study after studying in the English Bridge Program, please refer to the Matriculation into Undergraduate Studies section under the English Bridge Program section.

Exemption from English Proficiency Requirement (TOEFL/IELTS)

Applicants are exempted from the English proficiency admission requirement (TOEFL/IELTS) if they have achieved a minimum score of:

- B on the GCE A-level English Language subject
- 4 on the Advanced Placement (AP) English Language and Composition subject
- 6 on International Baccalaureate (IB) English Higher Level subject

AUS Institution Codes for Reporting Scores:

- The AUS SAT code is 5543.
- The AUS iBT TOEFL code is 0526.
- The AUS AP code is 5543.

TOEFL and IELTS scores are valid for two calendar years.

Secondary School Certificates

Recognized Secondary School Certificates

Secondary school certificates are awarded either by the country's ministry of education or by private schools and institutions.

AUS recognizes certificates awarded by the country's ministry of education. However, some countries award two levels of secondary school certificates. In this case, the university recognizes the higher certificate.

The university accepts 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.

Examples of Secondary School Certificates

Following is a list of some common certificates and the corresponding minimum levels of performance required for accepting an application at AUS. These certificates and levels of achievement serve only as guidelines for admission and may change depending on the education system/school, and the chosen major of interest. They may differ from other institutions or the standards that are generally accepted in an applicant's native country. Completion of mathematics and physics subjects at a certain level of performance is required for engineering- and science-related majors.

The university may consider other types of secondary school certificates.

- **American-style High School Diploma:** obtain a minimum Cumulative Grade Point Average (CGPA) equivalent to 85 percent (90 percent for General Track applicants from UAE schools). SAT (Math) score is also required.
- **BETC Diploma:** obtain BETC Level 3 Diploma and BETC Subsidiary Diplomas.
- **Canadian High School Diploma:** obtain a minimum average equivalent to 85 percent or more in the final year or in the best two years.
- **French Baccalaureate or equivalent:** obtain the baccalaureate with a minimum score of 13 out of 20.
- **General Secondary School Certificate (Thanawiyah Ammah):** obtain a minimum Cumulative Grade Point Average (CGPA) equivalent to 85 percent (90 percent for General Track applicants from UAE schools).
- **German Abitur:** obtain the Abitur with a minimum overall average of 3.00 in the final year.
- **IGCSE, GCSE, GCE:** complete at least five IGCSE/GCSE (O-Level) subjects, and either three AS-Level subjects or two A-Level subjects, and obtain a minimum overall weighted average of B, as calculated by AUS, of all subjects and levels combined (Arabic Language and Islamic Education are not counted as part of the above number of subjects). Additionally, applicants must complete Year 13 of schooling (equivalent to American Grade 12) and submit a sequencing certificate (certificate of school registration history) that confirms Year 13 as the last year of schooling. Furthermore, applicants must meet the following conditions:
  - Subjects must be from at least four different groups (such as art, humanities, languages, math, sciences, social studies).
  - Only subjects classified as academic by AUS (including arts and creativity subject group) will be considered for admission.
  - Priority in admission consideration and the selection of majors will be given to applicants who have completed more subjects than the minimum required and have achieved the highest grades.
- **Indian Board(s) Certificates:** complete 12th Standard and typically obtain a minimum of 65 percent or more in the Senior Secondary School Certificate (12th Standard), or 65 percent or more in the best two years.
- **International Baccalaureate Diploma (IB):** obtain the full IB diploma with six subjects (excluding Islamic Education) with at least three at the higher level, and attain a minimum score of 24 points. Applicants with only the IB certificate can apply and will be assessed based on their credentials.
- **Lebanese Baccalaureate:** obtain the baccalaureate with a minimum score of 13 out of 20.
- **Pakistani Boards Certificates:** obtain the Senior Secondary School Certificate (12th Standard) with an average equivalent to 85 percent or above, or a minimum average equivalent to 85 percent in the best two years, as calculated by the Office of Enrollment Management/Undergraduate Admissions.
- **Russian or Equivalent National Education Systems:** obtain a minimum required average of 4.0 in the final year or in the best two years.

Program Admission Requirements

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

- Literary Certificates: Holders may be admitted to the College of Arts and Sciences (except for the bachelor of science degree programs in biology, chemistry and biochemistry, environmental sciences and sustainability, mathematics and physics); the College of Architecture, Art and Design (except for the Bachelor of Architecture and the Bachelor of Interior Design degree programs); and any undergraduate degree program offered by the School of Business Administration.
- Scientific Certificates: Holders may be admitted to any undergraduate degree program in any of the colleges/schools.
- Technical and Vocational Secondary School Certificates: Highly motivated and academically qualified applicants may be admitted to an undergraduate degree program that corresponds to the nature of the technical or vocational secondary school program. For example, the holder of a technical secondary certificate in electricity may apply to the Bachelor of Science in Electrical Engineering degree program.

Early First-Year Admission

A student in his/her final year of secondary school may apply for early provisional admission by submitting official final grade 10 and grade 11 result reports and the SAT (Math) score (where applicable; refer to Application Process and to Secondary School Certificates earlier in this section).

Early first-year admission is offered only to highly qualified applicants and is not considered final until applicants 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.

Admitted applicants cannot register for courses until the admissions process has been completed.

Advanced Standing Credit Hours Transfer

Admitted applicants who achieve a minimum grade equivalent to B in the IB Higher Levels, GCE A-Levels, the Lebanese Baccalaureate, the French Baccalaureate, the German Abitur or the American Advanced Placement tests may be awarded course credit hours for first-year level courses. For more information, refer to Transfer of Credits at www.aus.edu/registrar, or email transfercredits@aus.edu.

Applicants who completed university courses while enrolled in high school may be awarded credits for the courses they completed. AUS transfer policies will apply.

Admitted applicants must submit a copy of their original secondary school certificate attested by the UAE Ministry of Education, or the appropriate authority, along with the subjects' descriptions to the Office of Enrollment Management/ Undergraduate Admissions no later than

the registration of their second semester of study at AUS. Admitted applicants are encouraged to submit their documents before their first semester of study to have their credentials evaluated toward credit hours transfer, as well as exemption from related placement tests, before registration in their first semester courses. Early evaluation will facilitate registration in appropriate first semester courses. For details on placement tests, see the following section.

No transfer of advanced standing credit hours will be awarded after completion of the first semester of study at AUS.

Admitted applicants will be notified of their transferred credit hours by the Office of the Registrar.

The Office of the Registrar maintains and updates the advanced standing students' records. The complete transfer policy is available from the Office of Enrollment Management/Undergraduate Admissions.

Pre-entry Requirements for First-Year Students

Placement Tests

All admitted applicants are required to take placement tests appropriate for their intended majors as shown in the Required Placement Tests table hereafter. For details on registration for placement tests and placement test schedules, consult www.aus.edu/testing-center/aus-placement-tests. Some applicants may be exempted from taking some or all the placement tests; see Exemption from Placement Tests later in this section.

Admitted applicants who have not met the English proficiency admission requirement (TOEFL or IELTS/Academic Version), are not eligible to take the English Placement Test (EPT) until the required official score reports are submitted; they are nonetheless eligible to take the mathematics and/or physics placement tests, if required by their intended major. Such applicants may be admitted to the English Bridge Program at AUS and will be required to sit for the English Placement Test upon matriculation from the English Bridge Program. For further information, please refer to the English Bridge Program section earlier in this catalog.

Admitted applicants who have met the English proficiency admission requirement (TOEFL or IELTS/Academic Version) and were not exempted from the English Placement Test (EPT) must take the EPT test to be eligible for course registration.

Admitted applicants who were not exempted from the math and/or physics placement test and who do not take that placement test, are not eligible to enroll in the corresponding 100-level math and/or physics course. Such applicants may be approved to complete the corresponding preparatory course.

Students are not allowed to take a placement test more than once. The sole exception is for mathematics placement tests if a student is changing programs and the mathematics requirement for the new program is different.

Students are not allowed to take a placement test once they have been registered in the corresponding course.

Required Placement Tests

Majors	Placement Test				
	Engineering Math	Business Math	Architecture Math	Physics	English
Architecture	No	No	Yes	No	Yes
Biology	Yes	No	No	Yes	Yes
Business Administration (all majors)	No	Yes	No	No	Yes
Chemistry and Biochemistry	Yes	No	No	Yes	Yes
Computer Science	Yes	No	No	No**	Yes
Data Science	Yes	No	No	Yes	Yes
Design Management	No	Yes	No	No	Yes
Engineering majors	Yes	No	No	Yes	Yes
English Language and Literature	No	No	No	No	Yes
Environmental Sciences and Sustainability	Yes	No	No	Yes	Yes
Film and New Media Design	No	No	No	No	Yes
Graphic Design	No	No	No	No	Yes
Interior Design	No	No	Yes	No	Yes
International Studies	No	No	No	No	Yes
Mathematics	Yes	No	No	Yes	Yes
Media Communication	No	No	No	No	Yes
Physics	Yes	No	No	Yes	Yes
Psychology	No	No	No	No	Yes
Undeclared Major	*	*	*	*	Yes

* Applicants with an undeclared major should take the placement tests required for their intended major.

** Students who plan to take PHY 101 to meet the natural sciences general education requirement are advised to take the physics placement test.

Exemption from Placement Tests

Advanced Standing Applicants

Advanced standing applicants may be exempted from taking certain placements tests depending on subjects/courses completed and grades earned. The list of subjects and their corresponding minimum grades is provided through the Transfer of Credits section at www.aus.edu/registrar. Applicants who have completed university-level courses may also be exempted from placement tests. For details, refer to Pre-entry Requirements for Transfer Students hereafter.

English Placement Test (EPT)

Taking the English Placement Test is mandatory for all applicants admitted to the first year. Applicants are exempted from taking the English Placement Test if they have achieved a minimum score of:

- 5.5 on the Internet-Based TOEFL (iBT) (equivalent to 102 on the previous scale)
- 610 on the Institutional Paper-based TOEFL (ITP) taken at AUS or at AMIDEAST offices or
- 7.5 on the IELTS (Academic Version)

Preparatory Courses

Students who do not attain the placement score necessary to register for the relevant 100-level course are enrolled in the appropriate preparatory course (i.e., MTH 00X, PHY 00X, WRI 00X).

Students who do not take the math and/or physics placement test may be allowed to register for the corresponding preparatory course (MTH 00X and/or PHY 00X).

The final grades of preparatory courses do not count toward the cumulative grade point average and credit hours earned for preparatory courses do not count toward graduation requirements.

Students are allowed to repeat a preparatory course up to Sophomore I (less than 45 credit hours).

Transfer Admission

Admission Requirements

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

- They are transferring from independently accredited institutions of higher education recognized by the UAE Ministry of Higher Education and Scientific Research and offering learning experiences equivalent to those offered at AUS.
- They have successfully completed one or more semesters (a minimum of 12 credit hours) at their institution and have not yet earned an undergraduate degree. Applicants who have earned an undergraduate degree must refer to the Applicants for a Second Degree section for information on admission requirements.
- They are in good standing (i.e., not on any probation or dismissal from the institution from which they are transferring).
- They achieved at their institution a minimum cumulative grade point average (CGPA) as required by AUS for that type of institution.
- They met the AUS admission requirements at the time of their admission to their current institution.
- They meet the English language proficiency requirements (TOEFL/IELTS) of AUS.
- They submit official transcripts of their high school and college/university records along with the syllabi for courses they seek to transfer.

Exemption from English Proficiency Requirement (TOEFL/IELTS)

Transfer applicants are exempted from the English proficiency admission requirement (TOEFL/IELTS) if, at the time of admission to their current institution, they have achieved a minimum score of:

- B on the GCE A-level English Language subject
- 4 on the Advanced Placement (AP) English Language and Composition subject
- 6 on International Baccalaureate (IB) English Higher Level subject

Likewise, transfer applicants granted credit hours or waivers for a writing (WRI) course are exempted from the English proficiency admission requirement.

Pre-entry Requirements for Transfer Students

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

Exemption from Placement Tests

Transfer applicants may be exempted from taking certain placements tests depending on transferred courses.

Math and Physics Placement Tests

Transfer applicants granted transfer of credit hours for courses equivalent to AUS math or physics courses are waived from taking the corresponding AUS math or physics placement tests.

English Placement Test

Transfer applicants granted transfer of credit hours for courses equivalent to AUS WRI 101 (Academic Writing I) or WRI 102 (Academic Writing II) and transfer applicants waived from WRI 001 are waived from taking the English Placement Test.

For information on transfer of credit hours, please refer to the Transfer of Credit Hours section hereafter.

Transfer of Credit Hours

Transfer applicants from two-year community colleges in North America and four-year colleges/universities with a similar mission to AUS may be awarded transfer of credit hours. Applicants who completed university courses while enrolled in high school may be awarded credits for the courses they completed. Students registered at AUS as exchange/non-degree/visiting students and who are subsequently admitted as degree-seeking students may be awarded transfer of credit hours for courses completed at AUS while under exchange/non-degree/visiting status and for courses completed outside AUS prior to admission to the AUS degree program. AUS transfer policies will apply. The minimum required course grade(s) to be considered for credit hours transfer will depend on the institution from which the applicant is transferring. Further conditions apply for students moving from exchange/non-degree/visiting status to degree-seeking status. For details, consult Change of Status later in this section of the catalog.

Transfer applicants with transcripts from two or more institutions of higher education are eligible for transfer evaluation of only the courses completed at the institutions meeting the AUS transfer admission requirements.

Admitted transfer applicants must submit their official transcripts, syllabi and requested work samples to the Office of Enrollment Management/ Undergraduate Admissions by the file completion deadlines announced by the office and published in the admission package. In addition to the official transcript and the syllabi of courses applicants seek to transfer, some programs may require applicants to submit samples of their work, assignments and/or examinations. Applicants who seek transfer of credit hours for studio courses are advised to provide a portfolio of completed course work in photographic, digital or original format.

Files completed by the published deadlines will be evaluated and admitted transfer applicants will be awarded transfer credit hours, as applicable, before the first day of registration of the student's first semester at AUS, thus facilitating registration in

appropriate first semester courses. Applicants who, for extenuating circumstances, could not provide their complete transfer details by the file completion deadlines, may request to have their files evaluated during the first semester at AUS. No transfer of credit hours will be awarded after completion of the first semester of study at AUS. Transcripts of transfer applicants will be evaluated only once.

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 meeting specific degree requirements. Transfer of credit hours will not be accepted for graduation project courses.

Engineering and computer science courses completed in academic programs recognized by ABET, Inc. (www.abet.org) will be evaluated for transfer of credit hours. Courses completed in programs not accredited by ABET could be evaluated for transfer of credit hours upon approval of the College of Engineering and the Vice Provost for Undergraduate Affairs and Instruction.

Courses related to areas taught within the School of Business Administration will be evaluated for transfer of credit hours only if they were completed within institutions accredited by the Association to Advance Collegiate Schools of Business (AACSB www.aacsb.edu), the European Quality Improvement System (EQUIS) or from universities approved by the School of Business Administration.

Courses completed more than five years prior to matriculation as an undergraduate student at AUS are not transferable. Courses completed within the context of an awarded undergraduate degree program will not be evaluated for transfer of credit hours or course waivers towards an AUS undergraduate degree program graduation requirements (see Applicants for a Second Degree hereafter).

A maximum of 50 percent of the credit hours required to earn a degree from AUS may be transferred from another institution. A maximum of 30 credit hours may be transferred from an institution where the language of instruction is not English. In addition, transfer students must satisfy the university's graduation residence requirements as outlined in the Academic Policies and Regulations section of this catalog.

The decision regarding credit hours awarded is made by the appropriate academic division at AUS with input from faculty with expertise in the subject area. Applicants will receive an email notification of their transferred credit hours by the Office of the Registrar.

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

While credit hours will be temporarily transferred, the student will not be awarded his/her bachelor's degree until AUS receives verification of the host institution's transcript.

The complete transfer policy is available from the Office of Enrollment Management/Undergraduate Admissions. The Office of the Registrar maintains and updates the transfer students' records.

Applicants for a Second Degree

Applicants who have completed an undergraduate degree at AUS are not eligible to apply for a second undergraduate degree at AUS.

Applicants with an undergraduate degree earned at another independently accredited university recognized by the UAE Ministry of Higher Education and Scientific Research and by AUS may apply for a second undergraduate degree at AUS. Courses completed within the context of the awarded undergraduate degree program will not be evaluated for transfer of credit hours or course waivers towards the AUS undergraduate degree program graduation requirements.

Applicants for a second undergraduate degree are required to complete an online application at apply.aus.edu, by the dates specified in the Application Deadlines section hereafter. The official transcript of the previously earned undergraduate degree must be submitted.

To be considered for admission, applicants must meet the minimum established university admission requirements, as well as any additional requirements specific to the degree program they are applying for. For details, refer to Program Admission Requirements under First-Year Admission earlier in this section of the catalog.

Non-degree Admission

Non-degree status is assigned to students who enroll in courses at AUS without pursuing a degree. Non-degree status does not apply to exchange, transient and visiting students.

Non-degree undergraduate applicants must meet the same minimum admission criteria established for first-year or transfer admission. Applicants are required to complete an online application at apply.aus.edu by the dates specified in the Application Deadlines section hereafter. Applicants must apply to the undergraduate degree program offering the courses in which they are interested.

After submitting their application, applicants should contact infodesk.aus.edu to request admission as Non-degree students.

Non-degree undergraduate students are not eligible for financial grants or scholarships.

AUS undergraduate students who have been dismissed or who interrupt their studies may not apply for admission as non-degree seeking students.

AUS students enrolled in a degree program may not change their status to non-degree seeking students.

Non-degree undergraduate students may enroll in any undergraduate university course for which they have the necessary academic background and qualifications. They register for courses with the assistance of the Academic Support Center (ASC). In courses with enrollment limits, priority is given to AUS degree-seeking students.

Non-degree undergraduate students may request to change status to undergraduate degree-seeking students. For details, please refer to the Change of Status section hereafter.

Returning Students

Students who leave AUS for two or more consecutive semesters, inclusive of a semester of complete course withdrawal, and wish to resume studies must complete an online application at www.aus.edu/apply by the dates specified in the Application Deadlines section hereafter.

Readmission of returning students is subject to AUS academic rules and regulations on readmitting students. All admission requirements in place at the time of applying for readmission must be met.

Courses taken at another institution while a student is away from AUS are eligible for transfer evaluation. For details, refer to Transfer of Credit Hours earlier in this section.

Information for readmitted students who received a financial grant and/or merit scholarship at the time of discontinuing their studies at AUS is provided in the Grants and Scholarships section under Tuition, Grants and Scholarships later in this catalog.

Students resuming their studies after completion of their military service, or following an approved medical leave, must contact the Office of the Registrar one month ahead of the semester/term registration period.

Applicants with Disabilities/Applicants of Determination

Depending on available resources, facilities and the type of disability, the university may provide special services and academic accommodations to applicants with disabilities/applicants of determination (visit www.aus.edu/life-at-aus/empowering-every-student-accessibility-support).

Applicants are requested to contact the Academic Support Center at asc@aus.edu to determine if a specific service can be provided by AUS. This information will be treated confidentially.

Application Deadlines

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

Spring Semester 2027

December 24, 2026

Summer Term 2027

May 13, 2027

Fall Semester 2027

Applications will be accepted only during the following periods:

Period One

October 15, 2026 to January 14, 2027

Period Two

January 18, 2027 to March 18, 2027

Period Three

April 6, 2027 to May 20, 2027

For more information on application timeline for the fall semester, visit www.aus.edu/admissions/bachelors-degrees/your-application-timeline-for-fall.

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

AUS Visa and Equalization Services (VES) assists admitted applicants with the immigration and visa process, ensuring they legally reside and study in the UAE. Applications for an AUS-sponsored student visa are reviewed by the pertinent UAE authorities and AUS holds no responsibility for ensuing rejections.

Admitted applicants who do not hold a UAE residence and who are not GCC or UAE citizens must apply for an AUS-sponsored student visa. The Student Visa Request form is available at www.aus.edu/admissions/international-students/student-visas. The request should be submitted at least two months prior to the admitted applicant's anticipated arrival to the UAE. Entering the UAE on a tourist visa does not warrant the admitted applicant an AUS-sponsored student visa.

Admitted applicants who are GCC or UAE citizens should reach out to the Office of Protocol and Security – Visa Section at ves@aus.edu for guidance about the formalities and documents required by AUS.

Admitted applicants who are holders of a UAE residence visa, who wish to change their current sponsor, should reach out to the Office of Protocol and Security – Visa Section at ves@aus.edu for guidance about the formalities and documents required for visa transfer.

The Offer of Admission

The offer of admission, regardless of type, is valid only for the semester for which an applicant applies.

If an applicant is granted admission for a certain semester and decides not to register in that semester, the applicant may request to defer their admission to the following semester by submitting a deferral request to apply.aus.edu. Admission consideration for the following semester will be subject to available seats and the applicable admission criteria.

Applicants who wish to change their degree program after admission must submit a new application. The application fee will apply.

Admission Deposit

All admitted applicants, regardless of type, are required to pay a seat reservation deposit of UAE Dirhams (AED) 5,000 and a residential hall room deposit (if applicable) of AED 1,000 by the deadline indicated in the letter of admission.

The seat reservation deposit is non-refundable, non-transferable to others and cannot be utilized for any other purpose than the intended one. Requests for refunds will not be considered. The seat reservation deposit is deductible from the student's bill if the applicant joins AUS in the semester of admission. If a student requests to defer admission to the following semester and the request is approved, the deposit will be applied to the following semester's invoice.

The residential hall room deposit is refundable upon checking out of the housing. Applicants who cancel their room reservations after the deadline set by Student Residential Life will be charged AED 500, which will be deducted from the residential hall room refundable deposit.

Falsified Admission Documents

American University of Sharjah reserves the right to take disciplinary action up to and including the revocation of admission or permanent dismissal if the university determines that information has been misrepresented in application documents or falsified documents have been submitted in support of an application for admission or matriculation.

Other Admission Categories

Exchange Student Admission

An exchange student is not formally admitted to American University of Sharjah but is allowed to take courses at the university in the context of a semester exchange program. Exchange students should check with their home institutions about the transferability of AUS credit hours to their programs.

To be admitted as an exchange undergraduate student, a student must be enrolled in an undergraduate degree program at an accredited institution and be in good academic standing in his/her current institution. In addition, students must have attained a minimum Internet-Based TOEFL score of 4.5 (equivalent to 80 on the previous scale) or a minimum Institutional Paper-based TOEFL (ITP) taken at AUS or at AMIDEAST offices of 550, or a minimum IELTS (Academic Version) score of 6.5, or they must have successfully completed the CEFR English C1 level. Exchange students coming from institutions located in an English-speaking country and where English is the language of instruction, or from institutions with an English language proficiency admission requirement higher than at AUS, are exempt from this requirement.

Students must first apply through the study abroad office at their home institutions. In addition, they must submit to the AUS International Exchange Office (IXO) a complete online application, accessible through www.aus.edu/ixo, along with an official university transcript showing courses in progress at the time of application. To secure seats in courses, applications should be submitted by the fourth Thursday of April for summer enrollment, the fourth Thursday of March for fall enrollment, and the fourth Thursday of October for spring enrollment.

Exchange undergraduate students register through IXO. They may enroll in any university undergraduate-level course for which they have the necessary academic background and qualifications. In courses with enrollment limits, priority may be given to AUS students. Tuition and fees are governed by exchange agreements. Details are available with AUS IXO.

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

For further information, please contact IXO at ixo@aus.edu.

Undergraduate students admitted as exchange students may request to change status to undergraduate degree-seeking students. For details, please refer to the Change of Status section hereafter.

Transient Student Admission

Transient student status is assigned to students who have obtained their undergraduate or graduate degrees from AUS and have returned to take extra course(s) at AUS.

Applicants seeking undergraduate transient student status at AUS and meeting the above criteria could be considered for undergraduate transient student admission. Applicants must submit to the Office of the Registrar the complete Transient Student Application available at www.aus.edu/registration/forms.

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

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

For further information, please contact the Office of the Registrar at registration@aus.edu.

Visiting Student Admission

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

To be admitted as a visiting undergraduate student, a student must be enrolled in an undergraduate degree program at an accredited institution and be in good academic standing in his/her current institution. In addition, students must have attained a minimum Internet-Based TOEFL score of 4.5 (equivalent to 80 on the previous scale) or a minimum Institutional Paper-based TOEFL (ITP) taken at AUS or at AMIDEAST offices of 550, or a minimum IELTS (Academic Version) score of 6.5, or they must have successfully completed the CEFR English C1 level. Visiting students coming from institutions located in an English-speaking country and where English is the language of instruction, or from institutions with an English language proficiency admission requirement higher than at AUS, are exempt from this requirement.

Applicants seeking visiting student status must submit to the AUS International Exchange Office (IXO) a complete online application accessible through www.aus.edu/ixo, along with an official university transcript showing courses in progress at the time of application. To secure seats in courses, applications should be submitted by the fourth Thursday of April for summer enrollment, the fourth Thursday of March for fall enrollment, and the fourth Thursday of October for spring enrollment.

If the application is approved, registration is completed through IXO. Visiting undergraduate students may enroll in any university undergraduate-level course for which they have the necessary academic background and qualifications. In courses with enrollment limits, priority may be given to AUS students. Tuition and fees of visiting students coming through third-party providers are governed by annual financial agreements. Details are available with AUS IXO. Visiting students applying directly to AUS are charged the same tuition and fees as undergraduate students.

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

For further information, please contact IXO at ixo@aus.edu.

Undergraduate students admitted as visiting students may request to change status to undergraduate degree-seeking students. For more information, please refer to the Change of Status section hereafter.

Change of Status

Students may request a change of status from non-degree to undergraduate degree status or from exchange/visiting to undergraduate degree status. Interested students must submit the Transfer Applicant online application form by the deadlines specified in Application Deadlines earlier in this section. All admissions requirements for transfer admission in place at the time of the change of status request must be met. In addition, students wishing to transfer to degree status must have achieved a minimum cumulative GPA of 2.00 in courses completed at AUS.

Courses taken at AUS while under exchange/non-degree/visiting status can be used to satisfy registration and graduation requirements where applicable. Grades earned in such courses will count in the cumulative grade point average (CGPA).

Courses completed outside AUS prior to admission to the degree program are evaluated for transfer of credit hours at degree program admission time. The university deadlines, rules and regulations governing transfer courses and credit hours will apply.

The degree program graduation requirements are determined by the catalog effective when the student is admitted to the degree program. For more information, please refer to the Catalog section under Graduation Requirements in Academic Policies and Regulations later in this catalog.

Academic Integrity

Student Academic Integrity Code

Academic integrity lies at the heart of intellectual life. As an institution committed to the advancement of knowledge in a manner consistent with the highest ethical standards, AUS affirms the importance of respecting the integrity of academic work. The AUS Student Academic Integrity Code (referred to herein as Code) describes standards for academic conduct, students' rights and responsibilities as members of an academic community, and procedures for handling allegations of academic dishonesty.

In order to establish within the AUS student body a sense of ethical responsibility, honor and mutual respect, prior to registration, every student must sign the following Academic Integrity Pledge:

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

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

Students are responsible for becoming familiar with their rights and responsibilities as defined by the Code and for ensuring that they understand the requirements for their particular courses (e.g., regarding issues such as collaborative work, use of Generative AI, use of study aids or take-home examinations, etc.).

Attempts to violate or to assist others in violating the Code, including unsuccessful attempts, are prohibited and will be treated as actual violations.

Definition of Academic Violations

Members of the AUS academic community are expected to conduct themselves with integrity in their work and actions. Violations of the Code include, but are not limited to, the following categories.

Plagiarism

To plagiarize is to use the work, ideas, concepts, images or words of someone else, or a generative AI tool, without fully acknowledging the source in all academic work, including assignments, quizzes, examinations, papers and projects. Plagiarism may involve using someone else's wording, or wording generated by an AI tool—a distinctive name, a phrase, a sentence or an entire passage or essay—without using quotation marks and appropriately citing the source. Plagiarism may also involve misrepresenting the sources that were used or expressing the ideas of someone else in your own words without the appropriate citation.

Inappropriate Collaboration

Collaboration on academic work may be encouraged, but it is important to ensure that contributions are acknowledged. Inappropriate collaboration includes working with someone else, or making use of a generative AI tool, 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 or the tool's help. The use of unauthorized assistance must be avoided in the production of all academic work.

Specific requirements related to collaborative work, peer review, the use of an external entity in the production of work, the use of tutors and editing may vary among courses and students must ensure that faculty members explicitly provide approval in advance of the collaboration.

Impersonation

Students must attend their own classes, be present and sit for all tests and examinations, and personally attend other events associated with a course. The individual impersonated and the impersonator may be subject to sanctions.

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. Students are prohibited from submitting any material prepared by or purchased from another person or company.

Communication is not allowed between or among students, nor are students allowed to consult books, papers, study aids or notes without explicit permission by the faculty member responsible for the course. Dishonesty includes, but is not limited to, communication with another student or an external party using electronic devices during an examination or in-class assignment, copying from another's paper, giving unauthorized assistance, obtaining unauthorized advance knowledge of examination questions, and the use of mechanical or marking devices or procedures for the purpose of achieving false scores on machine-graded examinations.

Specific policies regarding examinations may vary among individual professors.

If the possession of any active electronic communication device—including but not limited to mobile phones, smartwatches, cameras, smart glasses or similar devices—is expressly prohibited during an examination, then any student found in possession of such an active device shall be deemed in violation of this section of the academic integrity code.

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. If past research is incorporated into current projects, previous work must be appropriately referenced.

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, creative work, 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 Code prohibits theft and the unauthorized use of documents and requires adherence to the laws of Sharjah and the federal laws of the UAE.

The AUS library offers a Copyright and Permissions Service and can assist students with issues and questions related to copyrighted materials and their use.

Students may contact copyright@aus.edu for assistance.

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 Code. Complicity in academic dishonesty is pre-meditated and intentional. This can include, but is not limited to, the following:

- doing work for another student
- designing or producing a project for another student
- willfully providing answers during an exam, test or quiz
- communicating with another student or external party on a computer, mobile phone or other device while an exam is in progress
- providing a student with an advance copy of a test
- posting of notes or other materials from a class (whether the student is enrolled in the class or not) on the Internet, whether or not for a fee, without express permission from the faculty member
- leaving inappropriate materials behind at the site of an exam or test

Adjudication of Academic Offenses

Jurisdiction

Academic cases resulting from alleged violations of the Code are within the jurisdiction of the dean (or appointed designee) of the college/school in which the alleged Code violation occurred.

Faculty members who have knowledge of an alleged violation should report the incident to the dean (or appointed designee) of the college/school in which the alleged Code violation occurred.

A faculty member may exercise discretion in those cases involving a student's judgmental error rather than willful violation of the Code.

Students who wish to bring charges against other students must do so through the faculty member in whose course or academic activity the alleged Code violation occurred. The student who brings the charges must identify himself/herself to the faculty member.

Violations of the Code that involve admission and/or placement testing fall within the jurisdiction of the Vice Provost for Undergraduate Affairs and Instruction and may result in the revocation of admission or dismissal from the university.

The Adjudication Process

An allegation of dishonesty must be reported to the dean (or appointed designee) within five working days of the date of discovery of the alleged offense. Normally, an allegation of academic dishonesty must be reported during the semester in which it occurred, however there may be situations in which a violation is discovered after the semester has ended. Reports of an alleged violation must be supported by appropriate documentation.

Once the alleged violation has been reported, faculty members must not 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, and a "Pending Conduct Investigation" statement will be recorded on the student's academic transcript. For further details on the N grade entry, refer to No Grade Entries in Grades and Academic Standing later in this section of the catalog.

The student must remain enrolled in the course in which an infraction has been reported until the adjudication process is complete.

Legal counsel or involvement of any parties other than the student and relevant university personnel is not permitted at any point during the adjudication process.

After receiving complete information, the dean (or appointed designee) will follow the adjudication process outlined below:

a. The dean (or appointed designee) will promptly notify the student of the allegation and inform the student of the date and time of a formal meeting to discuss the charge.
b. The dean (or appointed designee) will meet with the student to explain the adjudication process and present the charge and the evidence. If the student fails to attend the meeting, the dean (or appointed designee) will proceed with the process.
c. The student will be given the opportunity to respond to the allegation in writing within two working days.
d. After the deadline for the student to respond to the allegation has passed, the dean (or appointed designee) will consider all evidence and, depending on whether a preponderance of evidence supports the allegation of academic misconduct, take one of the following actions:
    i) dismiss the case
    ii) request that the student resubmit the work in question or retake an examination
    iii) assign a penalty
e. If a student resubmits the work in question or retakes an examination, the results will be considered in determining whether a preponderance of evidence exists to support the allegation of academic misconduct and the assignment of a penalty.

Penalties

Violations of the Code will be treated seriously, with increasingly severe penalties considered for repeat offenders. A second violation may result in suspension or dismissal.

In assigning a penalty, the dean (or appointed designee) will take into account both the seriousness of the offense and any particular circumstances involved.

Penalties for an academic offense may include one or more of the following:

a. a warning letter to be kept in the academic integrity database maintained by the Office of the Vice Provost for Academic Affairs and Instruction
b. a lowered grade or loss of credit for the work found to be in violation of the Code (to be specified at the time that the penalty is assigned)
c. a lowered overall grade for the course in which the offense occurred (to be specified at the time that the penalty is assigned)
d. a failing grade of XF for the course in which the offense occurred (to be specified at the time that the penalty is assigned)
e. suspension for the semester/term in which the offense occurred or for up to two semesters following the semester/term in which the offense occurred
f. dismissal from the university

Penalties (b)–(f) will result in non-academic sanctions that may include prohibition from participation in extracurricular activities and the loss of AUS grants and scholarships. See the *AUS Student Handbook* for details.

For penalties (e) and (f), the student is assigned a grade of N for all semester/term registered courses, with a provision for a grade penalty for the course where the academic offense was reported. No refund or cancellation of tuition fees will be permitted in such cases.

Students are solely responsible for any financial implications resulting from an academic integrity violation.

Students found guilty of an academic integrity violation will not be allowed to complete a course evaluation for the course in which the offense occurred.

Students with a record of sanctions (b)–(f) resulting from violations of the Code (or of the Student Code of Conduct) will not be eligible for the Dean's List.

Suspension and Dismissal

The decision as to whether suspension or dismissal is appropriate in a given instance will necessarily depend on the circumstances of each case.

Suspension
(temporary separation from the university)

Suspension is effective for not less than the semester/term in which the penalty is levied or for not more than one calendar year. The length of a suspension must be specified in writing when the student is notified of the outcome of the adjudication process.

A student who is suspended is entitled to resume studies in the same college/school at the conclusion of the period of suspension if all academic requirements are met. The student must submit a Reactivation Request Form to the Office of the Registrar via the student's AUS email account. The form is available at www.aus.edu/registration/forms.

Courses completed outside AUS while on suspension do not transfer.

Dismissal
(permanent separation from the university)

Dismissal is invoked in cases of serious infractions of rules and regulations and when circumstances indicate that a student's association with the university should be terminated in the interest of maintaining the standards of behavior and conduct normally expected in a university community.

In instances where the dean (or appointed designee) hearing the case has recommended dismissal, the Academic Appeals Review Committee will review the case and make a recommendation to the Vice Chancellor for Academic Affairs and Provost.

Notification of Penalty

The dean (or appointed designee) hearing the case will notify the student in writing of the outcome of the adjudication process and, if applicable, the assigned penalty.

In addition to the faculty member bringing the charge, the following university officials have a legitimate need to know and will be informed of the outcome of the adjudication process at the time that the student is notified:

- the head of the department in which the offense occurred
- the dean of the college/school and the head of the department responsible for the major in which the student is enrolled (if applicable)
- the Vice Chancellor for Student Experience
- the Office of the Registrar
- the Academic Support Center
- the Vice Provost for Undergraduate Affairs and Instruction

For record keeping of documents pertaining to the infringement of the Code, please refer to the appropriate section under Student Records herein.

Appeal of Penalty

In cases concerning notation to the student's record [penalties (d)–(f)], students will be notified in writing of their right of appeal. Appeals must be submitted in writing to the Vice Provost for Undergraduate Affairs and Instruction within five working days of the date of notification of the outcome of the adjudication process by the dean (or appointed designee).

Appeals are limited to grounds of excessive sanction, improper procedure and unavailability of relevant evidence at the time of the meeting with the dean (or appointed designee) to discuss the charge with the student.

The Vice Provost for Undergraduate Affairs and Instruction may affirm, modify, or remand the case to the dean (or appointed designee) with instructions for further action. The decision of the Vice Provost is final.

For penalty (f), the Academic Appeals Review Committee will review the case and make a recommendation to the Vice Chancellor for Academic Affairs and Provost. The Vice Chancellor for Academic Affairs and Provost may affirm, modify, or remand the case to the dean with instructions for further action. The decision of the Vice Chancellor for Academic Affairs and Provost is final.

Notation of an Academic Integrity Code Violation Penalty

A student's standing that impacts his or her eligibility to continuously enroll at AUS affects academic progress and, for this reason, is deemed transcript-appropriate. The general type of infraction (academic or disciplinary) is noted on the student's transcript, as well as the office responsible for issuing the student's separation from the institution.

Penalties (d)–(f) will become a permanent part of the student's file maintained by the Office of the Registrar, with appropriate notation on the student's academic transcript indicating that there has been a violation of the Code.

For penalties (e) and (f), the student is assigned a grade of N for all semester/term registered courses, with a provision for a grade penalty for the course where the academic offense was reported.

The student may petition to replace an XF grade resulting from a category (d) penalty with an F grade at the time of graduation or following complete withdrawal from the university. For details, please refer to the Appeal of an XF Grade section under Student Petitions and Appeals.

For tracking purposes, all academic integrity violations will be recorded in the university's Student Infraction Management System maintained by the Office of the Vice Provost for Academic Affairs and Instruction.

Student Records

Custody of Records

All transcripts and other documents students submit from other institutions at the time of admission or later are the property of AUS, and, as such, are part of the student record that is under the custody of the Office of the Registrar. The university is not required to provide (or allow the making of) copies of these documents. Transcripts submitted to AUS for admission or credit hours transfer cannot be returned to the student or forwarded to other institutions.

The academic record of an individual student is maintained by the Office of the Registrar for a maximum period of five years after the student graduates or leaves AUS. Beyond this retention limit, documents in a student's record are managed in accordance with the AUS Office of the Registrar policy on file retention, which could entail permanent destruction of some of these documents.

Student Privacy Rights

The university reserves the right to disclose students' records to the parent, the immediate guardian of the student and to the private or public authority sponsoring the student.

AUS is required to comply with requests for student information originating from the UAE Government and the Sharjah Government.

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. Under specific circumstances, the university may allow specific documents included in a student's record to be provided. Requests for copies of documents will be reviewed after submission of a signed request from the student concerned.
- request changes or updates to their personal data. Registered students are given access to update their emergency telephone/mobile contact numbers and their personal email address via the secured online student information system. For mailing address updates, an official request signed by the student concerned must be submitted to the Office of the Registrar/Student Records section. The form is available at www.aus.edu/registration/forms.
- request non-disclosure, within the extent of UAE federal and local laws, of personally identifiable and/or academic information from education records.

For further information on students' records, please check with the Office of the Registrar/Student Records section.

Academic Transcripts

The Office of the Registrar maintains and updates the academic records of all students who register at the university. The permanent record reflecting the academic achievements of each student throughout his/her entire study period at the university is referred to as academic transcript or transcript.

At the end of every semester/term, the Office of the Registrar updates the academic transcripts of the students who were registered in that semester/term. Students may access their transcripts through the secure online student information system. Students are encouraged to review their records online periodically. Online transcripts are not official and are only intended to update students on their academic achievement.

Students may obtain copies of their AUS academic transcripts from the Office of the Registrar. Transcripts will only be released with a request submitted by the student concerned via an online request form available at www.aus.edu/registration/forms or an online request submitted by the student via the secured student information system. A nominal fee applies. The university will issue only complete transcripts, not parts of the student record. Students can email TranscriptsAndLetters@aus.edu for inquiries and details.

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

Records on Academic Integrity Code Violations

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

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

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

Records on Student Code of Conduct Violations

Violations of the Student Code of Conduct resulting in suspension (temporary separation from the university) or dismissal (permanent separation from the university) are recorded on the student's transcript of record.

While an investigation or hearing is planned or underway, a "Pending Conduct Investigation" statement will be recorded on the transcript.

All communications regarding decisions on suspensions or dismissals for Student Code of Conduct violations received by the Office of the Registrar are included in the student's record and are subject to university regulations concerning the confidentiality of student records. Upon written request, students have the right to inspect these records.

Enrollment Verifications and Certifications

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

Registration and Course Information

Course Registration

Orientation Program

Prior to registration, academic orientation is held for all new students to introduce them to the university's general academic regulations, policies and support services. In addition, each college/school has an orientation to familiarize students with its specific regulations and assist them with the registration process. Students admitted with an undeclared major and non-degree students are guided through the registration process by the Academic Support Center (ASC).

In collaboration with the ASC First Year Experience (FYE) program, the Office of Student Experience also acquaints students with university life through campus tours, visits, meetings, lectures, demonstrations and other activities. The program aims to help new students adjust to AUS, meet other new students and engage with senior students who assist with the orientation program.

Attendance at these programs is mandatory for all new students.

Registration Process

Before the priority registration period begins, the Office of the Registrar posts the registration guide at www.aus.edu/academics/registrars-services. The guide provides pertinent information and indicates the registration steps along with the place, date and time for each step. A continually updated list of courses offered is posted on the online student information system as well. Students should carefully read the registration guide as they prepare for registration and meet with their academic advisor.

Registration involves three main steps:

- academic advising
- selection and registration of courses
- payment of fees

New students and transfer students register with the assistance of their respective colleges/school. New and transfer students must ensure that all documents required for finalizing their admission, particularly those indicated in the letter of admission, are submitted to the Office of Enrollment Management/Undergraduate Admissions by the file completion deadlines announced by the office and published in the admission package. Transfer files completed by the deadlines will be evaluated for transfer of credit hours. For details, refer to Transfer of Credit Hours under Admission to Undergraduate Studies earlier in this catalog. New students admitted with an undeclared major are guided through the registration process by the Academic Support Center.

Exchange and visiting students register through the International Exchange Office (IXO). Non-degree students register with the assistance of the Academic Support Center. Study abroad and transient students register with the Office of the Registrar. For further details, see the corresponding sections under Admission to Undergraduate Studies earlier in this catalog.

Continuing and returning students register through the AUS student information system.

In cases of limited seat availability, AUS may give priority to students who have not had an opportunity to take a course for the first time. During the priority registration period, the university reserves the right to drop students who are repeating courses that were previously completed with a grade of C- or above. For violations related to registration, refer to the Student Code of Conduct in the *Student Handbook* accessible at www.aus.edu/student-handbook.

Academic Advising Services

Academic Advisors

Academic advising is an essential element of the educational process. American University of Sharjah requires advisor-student conferences at least once per semester/term.

Students are assigned academic advisors who help them select their courses of study and plan their schedules. The academic advisors also approve their schedules each semester/term. However, students are responsible for selecting their courses, meeting course prerequisites and adhering to the most recent university policies and procedures. The advisor assists the student in obtaining a well-balanced education and in interpreting university policies and procedures.

Students may also consult faculty members, department heads, program coordinators and associate deans or deans.

Academic Coaching

The Academic Support Center (ASC) offers AUS students academic coaching to enhance their academic journey at AUS.

Academic coaching is a dynamic process of questioning and probing, seeking clarity by both the coach and the student, and introducing or developing strategies that move the student towards the ultimate goal of self-directed life-long learning. It is a collaborative and trusting relationship between the ASC Academic Coach and the student, in which students are empowered to set and achieve their goals by understanding habits, strengths, self-regulation and study strategies.

Students on academic probation receive additional academic coaching and guidance from the ASC. For details on the ASC, consult Student Educational Services/Academic Support Center within the Campus Life section earlier in this catalog or visit www.aus.edu/academics/asc.

Student Course Load

Semester/Term Course Load

A student admitted to and enrolled in a degree program normally registers for 15 to 19 credit hours each semester. All credit hours exceeding 16 credits will require a supplemental fee. In a six-week summer term, a student can register for up to seven credit hours in two courses.

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

Full-Time Students

The required minimum load for a full-time student is 12 credit hours per semester, and the maximum load is 19 credit hours per semester.

Part-Time Students

Part-time students are those students who register for less than 12 credit hours in a given semester.

Degree-seeking students are expected to maintain full-time status. Degree- seeking students with academic difficulty could be moved to part-time status by their Academic Support Center coach. Due to special medical conditions or other special considerations, a degree-seeking student could select to move to part-time status.

Part-time students are not evaluated for placement on the Dean's List and the

Chancellor's List (see University Honors and Awards later in this section). Part-time students are normally not candidates for AUS disbursed financial grants or scholarships (for details, refer to the Tuition, Grants and Scholarships section later in this catalog). Some other AUS privileges of full-time, degree-seeking students might not be available to part-time students.

Overload Students

A student who has attained senior standing and is in good academic standing may seek the permission of his/her dean (or designee) to register for up to 22 credit hours in the semester of graduation or nine credit hours in a summer graduation term. A senior student in good academic standing may also seek permission to register for 22/9 credit hours in the semester/term preceding the semester/term of graduation provided the student is only completing the degree program internship graduation requirement in the graduation semester/term. All credit hours exceeding 16 credits will require a supplemental fee

First-Year Students Course Load

First-year students are normally restricted to five courses per semester to allow time for their adjustment to the learning environment of AUS.

Probation Students Course Load

An undergraduate student on Academic Probation 1 is allowed to carry a maximum load of 16 credit hours. An undergraduate student who is on Academic Probation 2 may only register for a maximum load of 13 credit hours.

Add and Drop

At the beginning of every semester/term, students who wish to make changes to their course registration are provided the opportunity to add and/or drop courses through the AUS student information system. The add and drop period begins on the first day of class. The duration of the add and drop period may vary, and the actual dates are published in the registration guide for each semester/term, available at www.aus.edu/academics/registrars-services.

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

Students wishing to drop courses after the end of the add and drop period of a semester/term may do so by requesting withdrawal from such courses. For details, consult Course Withdrawal and Leave of Absence/Withdrawal from the University later in this section of the catalog.

Students may not add courses after the end of the add and drop period of the corresponding semester/term.

Auditing Courses

An AUS student who wishes to attend a course but who does not wish to take examinations, receive a final grade and receive credit for the course may register to audit the course with the permission of the instructor and approval of the associate dean for undergraduate studies of the college/school offering the course. The instructor may establish standards of class participation and attendance that must be met if a student is to remain in audit status.

Registration is managed through the Office of the Registrar. In courses with enrollment limits, priority is given to students registering for credit. Changes to or from audit status must be made before the last day of the add and drop period.

Tuition and fees for audit students are the same as those for students registering for credit.

The audited course will appear on a student's transcript as audited.

Auditing Master's-Level Courses

With the permission of the instructor and approval of associate dean for graduate studies of the college/school offering the course, a senior student (90 and above credit hours) with a minimum CGPA of 3.00 can audit a master's-level course in his/her field of study. The student is charged based on the undergraduate tuition structure.

Graduate Students Auditing Undergraduate-Level Courses

With the permission of the instructor and approval of the associate dean for undergraduate studies of the college/school offering the course, a graduate student can audit an undergraduate-level course. The student is charged based on the graduate tuition structure.

Master's-Level Course Registration

With the approval of their associate dean and the relevant associate dean for graduate studies, undergraduate students in their last year of study who have achieved a minimum CGPA of 3.00 can register for up to two master's-level courses while enrolled at the undergraduate level.

Registration is managed through the Office of the Registrar. In courses with enrollment limits, priority is given to graduate students. Students are charged based on the undergraduate tuition structure.

Unless completed within the context of the Accelerated Master's Program, master's-level courses successfully completed while enrolled at the undergraduate level cannot be counted toward the undergraduate degree program graduation requirements. However, these courses may be counted toward completion of an AUS master's degree program graduation requirements, provided they were completed no more than five years prior to the start date of the first semester of study of the student's current master's degree program.

Accelerated Master's Program Students

Undergraduate students accepted to the Accelerated Master's Program (AMP) of an AUS master's-level degree program are eligible to register for a maximum of six credit hours in master's-level courses while completing their undergraduate degree program graduation requirements. Master's-level courses successfully completed while in the AMP may be used towards meeting the undergraduate degree program graduation requirements. After gaining admission to the graduate degree program corresponding to the student's AMP, these courses can be assessed for credit transfer towards fulfilling the graduation requirements of the master's-level degree program.

For full details on the AMP, including eligibility, application process, course registration and tuition fees, refer to Accelerated Master's Program later in this section of the catalog.

Independent Study Course Registration

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

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

An independent study should not be used to meet core requirements, foundations year requirements, major requirements, minor requirements, concentration requirements or general education requirements. An independent study can be offered to meet the major electives, minor electives, concentration electives or free electives requirement. An independent study can only be offered in a semester/term that is defined in the academic calendar. For more information, refer to the Independent Study Application

form available at www.aus.edu/registration/forms.

Students interested in registering for an independent study course must complete the Independent Study Application form and submit it to the Office of the Registrar during the registration period of the upcoming semester/term. Registration is handled by the Office of the Registrar.

Tuition and fees for independent study courses are the same as those for other courses.

Independent study courses are graded and appear on the student's transcript.

Independent Course
(1 to 4 credit hours)

An independent course is a current or previously listed catalog course that is offered in an independent study format. The course is coded using the catalog course number. Approved special topic courses may be offered in an independent course format.

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

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

Directed Study
(1 to 4 credit hours)

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

A directed study proposal must be accompanied by a syllabus that provides a description and clearly specified outcomes.

A free elective may be completed as a directed study if a student demonstrates interest and prior preparation in the subject area or related fields.

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

Internship Registration

A number of degree programs at AUS require students to successfully complete an internship. Internships that do not carry academic credit hours are charged a registration fee and are graded as Pass/Fail.

Internships that contribute to meeting graduation requirements must be the equivalent of a minimum of five consecutive weeks of full-time employment. For details, consult the degree programs section later in this catalog.

To be eligible to pursue an internship, students should normally have completed a minimum of 75 undergraduate credit hours. A college/school may have a higher minimum credit hours requirement. Approval is granted by the internship coordinator within the college/school.

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

Internships are normally completed during the summer before the final year of study. Other registration patterns can be approved by school/college of the concerned degree program. Study load during the semester/term for which a student is registered in an internship may be impacted. Students should consult the school/college internship manual for guidance on permitted study load specific to their internship.

Study Abroad Opportunities for AUS Students

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

- The host institution is recognized by the UAE Ministry of Higher Education and Scientific Research.
- The host institution is not located in a country the student is a citizen/resident of. Students will be permitted to study in a country in which they hold citizenship/residency provided the total period of residency in the country has not exceeded five years, and no more than two years of secondary education were completed in the intended host country.
- The language of instruction of the course(s) taken at the host institution must be English, except for foreign language courses conducted in other languages. Foreign-language courses may be transferred as free electives. Certified translations of syllabi or other relevant material may be required.
- With the approval of the relevant associate dean, a student pursuing a study abroad experience at colleges and universities recognized by the United States Department of Education's regional accreditation authorities and the UAE Ministry of Higher Education and Scientific Research, or at an official AUS exchange partner college/university, may take course(s) at the host university that are taught in languages other than English. Courses taught in languages other than English must be determined to be equivalent in content to AUS courses or approved to meet specific degree requirements (e.g., major electives, free electives, etc.). Certified translations of syllabi or other relevant material may be required.

Of particular interest might be institutions with which AUS has study abroad agreements.

Requirements

Students who wish to study abroad during a regular semester must have achieved a minimum cumulative GPA of 2.50 and have earned at least 45 credit hours in undergraduate-level courses by the end of the last semester/term preceding the study abroad semester. Students are strongly advised to start the application process two semesters before their intended study abroad semester.

Contact hours for courses at the host institution must be equivalent to or greater than the contact hours required for equivalent courses at AUS.

Courses taken at AUS cannot be repeated in the context of a study abroad program.

Course prerequisites must be met prior to starting the course at the host institution.

For courses with a laboratory component at AUS, both lecture and laboratory must be taken concurrently at the host institution.

Courses related to areas taught within the School of Business Administration will be evaluated for transfer of credit hours only if completed within institutions that are AACSB or EQUIS accredited, or at universities approved by the School of Business Administration.

Engineering and computer science courses will be evaluated for transfer of credit hours only if completed in academic programs recognized by ABET, Inc. Courses completed in programs not accredited by ABET could be evaluated for transfer of credit hours upon approval of the College of Engineering and the Vice Provost for Undergraduate Affairs and Instruction.

Graduation residence requirements must be met. For details, see Graduation Residence Requirements under Graduation/Graduation Requirements later in this section.

Application Process

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

Students applying to take online courses as study abroad courses must clearly identify the online courses on the Course Permission Form–Outgoing Students and provide detailed syllabi of these courses.

Students must submit the completed Course Permission Form–Outgoing Students to IXO by the deadlines specified on the application form. The IXO-approved application form must be deposited at the Office of the Registrar by the end of the third week of classes of the AUS summer term for study abroad in a fall semester, and prior to the student's departure for study abroad in a spring semester. Failure to do so will result in no credit being awarded for the work completed abroad.

Registration

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

Students taking online courses in addition to regular courses cannot be registered at more than one study abroad institution.

AUS students studying abroad are generally not eligible to be enrolled for in-person course work at AUS for the AUS semester overlapping with the study abroad semester. However, students may petition to enroll in one AUS online course concurrently with their study abroad semester, provided the AUS course is required for a timely progression of their AUS degree program graduation requirements and is not offered at the study abroad host institution.

Placement on Dean's List

Students registered at an institution with which AUS has a study abroad agreement are eligible for evaluation towards placement on the AUS Dean's List. For details, see University Honors and Awards later in this section of the catalog.

Transfer of Credit Hours

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

- Upon completion of the course(s), the student submits to the AUS Office of the Registrar an official transcript from the host institution demonstrating that the student met the minimum course passing grade requirement, as indicated on the Course Permission Form–Outgoing Students.
- The student had a 2.50 cumulative GPA at the time study abroad courses are taken at the host institution.
- The student had passed the course prerequisites prior to starting the course at the host institution.

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

A maximum total of 30 credit hours may be transferred from institutions where the medium of instruction is not English.

A maximum of six online credit hours can be approved for transfer throughout the student's undergraduate studies at AUS.

At least 50 percent of the required credit hours for a degree must be successfully completed in residence at AUS.

While credit hours will be temporarily transferred, the student will not be awarded his/her bachelor's degree until AUS receives the verification of the host institution's transcript.

For inquiries related to transfer of credit hours, please contact the Office of the Registrar at transfercredits@aus.edu.

For further information on studying abroad, please contact IXO at ixo@aus.edu.

Summer/Winter Courses outside AUS

An enrolled student is eligible to apply to take courses at another college/university during the summer or in the period between the fall semester and the spring semester (herein referred to as winter) with the aim of transferring credit hours to AUS. To this end, students must choose institutions meeting the following conditions:

- The host institution is located outside the UAE.
- The host institution provides learning experiences similar to those offered by AUS.
- The host institution is recognized by the UAE Ministry of Higher Education and Scientific Research.
- The language of instruction of the course(s) taken at the host university must be English, except for foreign language courses conducted in other languages. Approved foreign-language courses may be transferred as free electives. Certified translations of syllabi or other relevant material may be required.
- With the consent of the relevant associate dean, a student may take course(s) at colleges and universities recognized by the United States Department of Education's regional accreditation authorities and the UAE Ministry of Higher Education and Scientific Research, or at an official AUS exchange partner college/university, that are taught in languages other than English. Such courses must be determined to be equivalent in content to AUS courses or approved to meet specific degree requirements (e.g., major electives, free electives, etc.). Certified translations of syllabi or other relevant material may be required.
- The summer term at the host institution must not begin prior to the end of the spring semester examination period at AUS. The winter term at the host institution must not begin prior to the end of the fall semester examination period at AUS.
- The summer term at the host institution must end before the first day of classes of the fall semester at AUS. The winter term at the host institution must end before the first day of classes of the spring semester at AUS.

Requirements

Students wishing to take summer/winter courses outside AUS must be in good academic standing at AUS at the time their application is reviewed.

Contact hours for courses at the host institution must be equivalent to or greater than the contact hours required for equivalent courses at AUS.

Courses taken at AUS cannot be repeated in the context of Summer/Winter Courses outside AUS.

Course prerequisites must be met prior to starting the course at the host institution.

For courses with a laboratory component at AUS, both lecture and laboratory must be taken concurrently at the host institution.

Courses related to areas taught within the School of Business Administration will be evaluated for transfer of credit hours only if completed within institutions that are AACSB or EQUIS accredited, or at universities approved by the School of Business Administration.

Engineering and computer science courses will be evaluated for transfer of credit hours only if completed in academic programs recognized by ABET, Inc. Courses completed in programs not accredited by ABET could be evaluated for transfer of credit hours upon approval of the College of Engineering and the Vice Provost for Undergraduate Affairs and Instruction.

Graduation residence requirements must be met. For details, see Graduation Residence Requirements under

Graduation/Graduation Requirements later in this section.

Amount of Credit Hours

For a six-week summer term conducted at a host institution, students may normally transfer no more than seven credit hours.

For summer terms of a different duration and for winter terms, AUS normally allows no more than the equivalent credit hours of the six-week summer term at AUS.

A college/school may place further restrictions on the allowable maximum number of credit hours. Students must consult with the relevant associate dean(s) when planning for summer or winter courses outside AUS.

Application Process

Prior to registering for courses at the host institution, students must complete the Permission to Take Summer/Winter (Mini-Mester) Courses outside AUS form available at www.aus.edu/registration/forms and submit it to the Office of the Registrar. Forms must be submitted by the end of the 14th week of the preceding spring semester for a summer term and by the end of the 14th week of the preceding fall semester for a winter term. Credit hours will not be awarded if the completed form is not submitted to the Office of the Registrar by the deadlines.

Students applying to take online courses as summer or winter courses outside AUS must clearly identify the online courses on the Permission to Take Summer/Winter (Mini-Mester) Courses outside AUS form and provide detailed syllabi of these courses.

Registration

AUS students taking courses outside AUS in the summer are not eligible to be enrolled for any type of course work at AUS for the overlapping AUS summer term.

Students may register for more than one summer term between spring and fall semesters with approval of the relevant associate dean(s). Students may not be concurrently registered in overlapping summer terms.

Students taking online courses in addition to regular courses must be registered for all courses with the same host institution.

Transfer of Credit Hours

Credit hours earned in summer/winter courses taken outside AUS will transfer provided the following conditions are met:

- Upon completion of the summer course(s), and before the end of the following fall semester (end of the following spring semester for winter courses), the student submits to the Office of the Registrar an official transcript from the host institution demonstrating that the student met the minimum course passing grade requirement, as indicated on the permission form.
- The student was in good academic standing at AUS at the time summer/winter courses were taken at the host institution.
- The student had passed the course prerequisites prior to starting the course at the host institution.

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

A maximum total of 30 credit hours may be transferred from universities where the medium of instruction is not English.

A maximum of six online credit hours can be approved for transfer throughout the student's undergraduate studies at AUS.

At least 50 percent of the required credit hours for a degree must be successfully completed in residence at AUS.

While credit hours will be temporarily transferred, the student will not be awarded his/her bachelor's degree until AUS receives the verification of the host institution's transcript.

For further information related to transfer of credit hours, please contact the Office of the Registrar at transfercredits@aus.edu.

Tuition and Fees

For specific information on tuition, fees, payment methods and deferment of tuition and fees, please refer to the Tuition, Grants and Scholarships section later in this catalog.

Attendance, Withdrawal and Interruption of Studies

Attendance and Lateness

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

University guidelines for lateness and attendance are as follows:

- Three occasions of lateness count as one absence. Lateness is defined by the individual instructor.
- In the event a student misses 15 percent of the total number of scheduled sessions in a class for any reason, the instructor may initiate withdrawal of the student from the course if a written warning or formal notification was issued when the number of absences reached 10 percent. If withdrawal is initiated prior to the end of the 13th week of classes (end of the fourth week of classes for a six-week summer term), the withdrawal will result in a grade of W for the specific course. If the absence limit is exceeded after the end of the 13th week of classes, students will be graded accordingly.
- Students are expected to manage course attendance to ensure that absences due to personal reasons, including medical emergency, serious illness or national duty, or participation in extracurricular events do not exceed the 15 percent limit.
- Students who are absent as a result of participation in a university-sanctioned extracurricular event approved by the Office of the Vice Chancellor for Academic Affairs and Provost must notify the instructors at least two weeks in advance of the event-related absence and, if the requirements of the course allow, instructors are expected to make reasonable accommodations that may include make-up exams or the submission of assignments prior to an absence.
- Stricter attendance requirements may be approved by the relevant dean (or appointed designee) for courses that depend upon student contributions to complete collaborative team-based projects or to prepare for public performances.
- Instructors must specify attendance requirements in the course syllabus. If the syllabus states that missing 15 percent of class sessions will result in withdrawal, then attendance records must be maintained.
- The specific application of the attendance guidelines is at the instructor's discretion.

Students are fully responsible for dropping or withdrawing from courses that they are not attending. Students who register for a course and do not attend may be administratively withdrawn, which will render them ineligible for a tuition refund or adjustment.

Absence due to a medical emergency, national duty or documented extraordinary circumstances may result in missing a course assessment (e.g., a quiz, midterm, studio review or an assignment deadline). For guidance, refer to the corresponding policies in Grades and Academic Standing/Course Assessments later in this section of the catalog.

Course Withdrawal

After the add and drop period of a semester/term has ended and up until the end of the 13th week of classes (end of the fourth week of classes for a six-week summer term), students seeking to withdraw from one or more courses while maintaining registration in at least one course in the registration semester/term may do so by submitting the secured online Course Withdrawal Form – Undergraduate Level Students (available at www.aus.edu/registration/forms). For withdrawal from all courses registered for in a semester/term, consult Leave of Absence/Withdrawal from the University later in this section of the catalog.

For course withdrawal during the add and drop period of a semester/term, consult Add/Drop within Course Registration earlier in this section of the catalog.

A grade of W will be recorded on the transcript for the course from which the student has withdrawn. A W grade does not impact the student's GPA. The semester/term tuition is not recalculated following course withdrawal.

Students are expected to maintain a minimum load of 12 credit hours per semester (see Student Course Load earlier in this section). Students on AUS financial grants/scholarships must maintain the minimum registration load specified by their grant/scholarship. For more information, refer to the Tuition, Grants and Scholarships section later in this catalog.

Students are fully responsible for dropping or withdrawing from courses they are not attending. Students who register for a course and do not attend may be administratively withdrawn, which will render them ineligible for a tuition refund or adjustment.

Instructors may withdraw a student from a course for excessive absence. For details, refer to the section on Attendance and Lateness.

A student may not withdraw from a course in which an academic integrity offense was committed until the case has been reviewed and the adjudication process is complete.

Leave of Absence/Withdrawal from the University

Students seeking to interrupt their studies, whether for one semester/term or more, must submit the secured online Leave of Absence/Complete Withdrawal Form (available at www.aus.edu/registration/forms). An interruption of one semester is referred to as a Leave of Absence. An interruption of two or more semesters is referred to as a Withdrawal from the University.

For the purpose of this policy, the following understandings apply:

- a semester of complete course withdrawal is considered as a semester of Leave of Absence.
- AUS students studying abroad for a regular semester at an institution with which AUS has a study abroad agreement are considered to be in residence.
- a summer term abroad at an institution with which AUS has a study abroad agreement is not considered as a term in residence.

For retrieval of official documents following complete withdrawal from the university, refer to Students Records earlier in this section of the catalog.

Submission Timeline

A Leave of Absence/Complete Withdrawal Form must be submitted before the end of the 13th week of classes (end of the fourth week of classes for a six-week summer term).

Requests submitted during the semester/term add and drop period will result in the semester/term courses dropped and not recorded in the student's transcript.

After the add and drop period and up until the end of the 13th week of classes (end of the fourth week of classes for a six-week summer term), requests for interruption of studies result in a grade of W assigned to all the courses registered in the semester/term of interruption of studies.

Courses of students who fail to submit a Leave of Absence/Complete Withdrawal Form prior to discontinuing their studies will be graded accordingly.

If, due to medical reasons, a student must interrupt their studies after the 13th week of classes (end of the fourth week of classes for a six-week summer term), the student may submit a Student Petition Form (available at www.aus.edu/registration/forms) to the Office of the Vice Provost for Undergraduate Affairs and Instruction with the appropriate original medical documents. The Office of the vice provost will verify the claims and approve the interruption of studies with a grade of W recorded for the courses the student was registered for.

Tuition Refund Schedule

Depending on the time of the semester/term when the request for a complete withdrawal is submitted, the refund schedule outlined in the following table will apply.

Withdrawal from the University
Before the end of the first week of classes
100% refund excluding non-refundable deposits
During the second week of classes
50% refund of tuition, excluding the amount covered by AUS grants/scholarships
During the third week of classes
25% refund of tuition, excluding the amount covered by AUS grants/scholarships
After the third week of classes
0% refund

Students are fully responsible for dropping or withdrawing from courses that they are not attending prior to discontinuing their studies at the university. Students who do not drop or withdraw from courses may be administratively withdrawn, which will render them ineligible for a tuition refund or adjustment. Students in this category who seek to resume studies at the university following interruption of studies must pay all the upcoming semester/term tuition and fees, including charges that resulted from administrative withdrawal from courses.

Reactivation of Student Records Following Interruption of Studies

Students Away for One Semester

Students in Good Academic Standing

A student in good academic standing who wishes to resume studies following an interruption of studies for one semester must submit a Reactivation Request Form, available at www.aus.edu/registration/forms, to the Office of the Registrar from their AUS email account one month prior to registration. Returning students who received a financial grant and/or merit scholarship at the time of discontinuing their studies at AUS should consult the Grants and Scholarships section under Tuition, Grants and Scholarships later in this catalog.

Students on Academic Probation

- Students who are on academic probation and interrupt their studies by withdrawing from all courses during the probation semester are normally not eligible to resume studies at AUS. Such students may petition to resume their studies by submitting the Reactivation Request Form (available at www.aus.edu/registration/forms) to the Office of the Registrar, via their AUS email account, one month prior to registration. Reactivation requests are evaluated by the Director of the Academic Support Center, in coordination with the student's associate dean, on a case-by-case basis. Only in

very exceptional cases would such requests be approved.

- Students who are on academic probation and interrupt their studies for one semester must petition to resume their studies by submitting the Reactivation Request Form (available at www.aus.edu/registration/forms) to the Office of the Registrar, via their AUS email account, one month prior to registration. Only with the approval of the Director of the Academic Support Center, in coordination with the student's associate dean, will a student be allowed to resume studies in his/her original major.

Students Away Longer than One Semester

Students who leave AUS for two or more consecutive semesters, inclusive of a semester of complete course withdrawal, must submit a new application for admission to the Office of Enrollment Management/
Undergraduate Admissions. For details, refer to Returning Students under the Admission to Undergraduate Studies section earlier in this catalog.

Transfer of Credit Hours

Courses taken at another institution while on Leave of Absence will not be transferred.

Similarly, students who withdraw from the university and resume studies after a semester away are not eligible for transfer evaluation of courses completed at another institution while away.

Students who resume their AUS studies after having been away for two or more consecutive semesters, inclusive of a semester of complete course withdrawal, are eligible for transfer evaluation of courses completed while away, provided they meet the transfer admission requirements in effect at the time of their application for readmission to the university. The transfer policy applies. For details, refer to Transfer of Credit Hours within Admission to Undergraduate Studies earlier in this catalog.

Course Information

Course Code

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

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

Normally, 100-level course numbers denote first-year-level courses, 200-level course numbers denote sophomore-level courses, 300-level course numbers denote junior-level courses, and 400- or 500-level course numbers denote senior-level courses.

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

Preparatory Courses

Courses with a 00X number are preparatory courses. They are intended for students with a deficiency in a specific subject matter. These courses do not count toward meeting the graduation requirements of degree programs. For more details, refer to Preparatory Courses under Graduation later in this section of the catalog.

Reserved Course Numbers

Certain course numbers denote the course type or the course delivery mode. These numbers are reserved three-digit numbers; the first digit indicates the level of the course, and the last two digits indicate the type of the course or the course delivery mode. Reserved course numbers are listed in the following table:

Course Number	Reserved for
x90, x91, x92	Project courses
x93	AUS courses offered abroad
x94	Special topic courses
x95	Seminar courses
x96	Independent study courses
x97	Internship courses
x98	AUS studio courses offered abroad
x99	Honors Thesis

A two-digit suffix is appended to the reserved course number to allow the offering of multiple differentiated sections of the same course type, e.g., ARA 39401, ARA 39402. In this example, 394 indicates a special topic offering; 01 and 02 are the 2-digit suffices differentiating the two offerings.

Course Credit Hours Definition

All courses are valued in credit hours. Normally, each credit hour represents 50 minutes of class instruction per week each semester, two 50-minute recitation sessions per week each semester, or three 50-minute laboratory sessions per week each semester. Due to the unique nature of labs in different content areas, one credit hour may be assigned for as few as two 50-minute laboratory sessions per week or as many as four.

Design courses, studios, visual and performing arts courses, language courses and project courses may be weighted differently.

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

BIO 310 General Physiology (3-3-4)

In this example, BIO 310 has three contact hours per week, three lab hours per week, and the student who successfully completes the course earns four credit hours.

Note: Credit hours of preparatory courses do not count toward meeting the graduation requirements of degree programs.

Course Descriptions and Syllabi

Except for special topic courses, AUS courses offered abroad and independent study courses, descriptions of courses offered by AUS are listed in the Course Descriptions section of this catalog and are also accessible online via the AUS student information system. In the Course Descriptions section of the catalog, courses are grouped by course subject and sorted by course code within the college/school offering them. Interdisciplinary courses carrying regular course numbers are listed in a dedicated section, outside of the college/school sections. Descriptions of special topics courses and AUS courses offered abroad are made available during registration in the college/school offering the course.

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

Course Prerequisites

Many courses above the introductory level require a minimum background of knowledge, as indicated by prerequisite courses cited in individual course descriptions. Titles and numbers are those of AUS courses. Equivalent courses

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

Students are responsible for having the required competence when entering a class. Courses for which a grade below C- was received do not satisfy prerequisite requirements.

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

Required and Elective Courses Definitions

In meeting degree programs' graduation requirements and requirements of minors of their choice, students are required to complete a set of required and elective courses.

Required courses are courses that are prescribed by the degree program/minor. Students are expected to complete all the required courses identified by their degree program/minor. A choice may be allowed between sets of required courses.

Elective courses are courses selected at the student's discretion, after consultation with their academic advisor. Electives may be selected from a list of courses identified by the program/minor; or are free electives, selected by the student from the course offering of a registration semester/term. Elective courses could also be completed as independent study courses (see Independent Study Course Registration earlier in this section).

Courses Offerings and Schedules

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

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

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

Usage of the AUS Learning Management System is mandatory for all courses at AUS.

Fields of Study

Degree Offerings

American University of Sharjah has four colleges/schools that offer bachelor's, master's and doctoral degree programs. Bachelor's degree programs are listed below. Master's and doctoral degree offerings are listed in the *AUS Graduate Catalog*.

College of Architecture, Art and Design

- Bachelor of Architecture
- Bachelor of Interior Design
- Bachelor of Science in Design Management
- Bachelor of Science in Film and New Media Design
- Bachelor of Science in Graphic Design

College of Arts and Sciences

- Bachelor of Arts in English Language and Literature
- Bachelor of Arts in International Studies
- Bachelor of Arts in Media Communication
- Bachelor of Arts in Psychology
- Bachelor of Science in Biology
- Bachelor of Science in Chemistry and Biochemistry
- Bachelor of Science in Data Science
- Bachelor of Science in Environmental Sciences and Sustainability
- Bachelor of Science in Mathematics
- Bachelor of Science in Physics

College of Engineering

- Bachelor of Science in Chemical Engineering
- Bachelor of Science in Chemical and Biological Engineering
- Bachelor of Science in Civil Engineering
- Bachelor of Science in Computer Engineering
- Bachelor of Science in Computer Science
- Bachelor of Science in Digital Construction Engineering and Management
- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Industrial Engineering
- Bachelor of Science in Intelligent Systems and Mechatronics Engineering
- Bachelor of Science in Mechanical Engineering

School of Business Administration

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

Major Offerings

A major constitutes the student's main field of study. It requires students to complete a core of courses that are distinctive to that subject area.

Major offerings are determined by the degree offerings. Normally, students declare their major by applying to a particular degree program offered by a college/school. Students applying to the BSBA degree program choose one out of the seven majors offered by the program.

Students could choose to specialize in a maximum of two majors (see Declaration of a Second Major herein).

Undeclared Major Students

Students admitted with an undeclared major must declare a major and secure admission to their major of choice by the end of their sophomore year in order to continue as AUS students.

Students who wish to change major but do not meet the admission requirements of the new major may seek undeclared major status, provided they have earned less than 60 credit hours. To be eligible for continuous enrollment at the university, such students must secure admission to their major of choice by the end of their sophomore year.

Undeclared major students are guided through the advising and registration process by their intended major advisor. Students who have not identified an intended major are guided through the registration process by the Academic Support Center.

To declare a major, the student must submit the Change of Major Form (available at www.aus.edu/registration/forms) to the office of the associate dean for undergraduate studies of the college/school housing the major of his/her choice. Requests will be evaluated only after the cumulative GPA of the semester/term in progress has been updated. The office of the associate dean will email the approved forms to the Office of the Registrar. Approved forms must be received by the Office of the Registrar no later than the end of the Add/Drop period of the following semester/term.

A change in major might entail a change in a student's catalog. Please refer to the Change of Major section hereafter and to the Catalog section under Graduation Requirements for more information.

Change of Major

Students seeking to change their major within their college/school or to change their college/school must complete the Change of Major Form (available at www.aus.edu/registration/forms). Requests for a change of major or change of college/school should be submitted to the office of the associate dean for undergraduate studies of the college/school housing the new major. Requests will be evaluated only after the cumulative GPA of the semester/term in progress has been updated. The office of the associate dean will email the approved forms to the Office of the Registrar. Approved forms must be received by the Office of the Registrar no later than the end of the Add/Drop period of the following semester/term.

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

To be eligible for a change of major, a student must be in good academic standing and must meet the specific requirements for acceptance to the new major. For details on the admission requirements of a major, please refer to the corresponding section under the college/school housing the major or consult with the head of the department housing the major.

A change in major might entail a change in a student's catalog. Please refer to the Catalog section under Graduation Requirements for more information. In addition, students seeking a change of major must consult the graduation requirements of the new degree program, as stipulated in the new student's catalog, to identify specific program graduation requirements for major-designated general education courses, and consult with the college/school to determine how completed courses correspond to the graduation requirements of the new major.

Declaration of a Second Major

Students may select to enroll in two separate majors. To declare a second major, a student must complete the Minor/Double Major Form (available at www.aus.edu/registration/forms) and submit it to the office of the associate dean for undergraduate studies of the college/school housing the second major. Requests will be evaluated only after the cumulative GPA of the semester/term in progress has been updated. The office of the associate dean will email the approved forms to the Office of the Registrar. Approved forms must be received by the Office of the Registrar no later than the end of the Add/Drop period of the following semester/term.

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

To be eligible for a second major, a student must be in good academic standing and must meet the specific requirements for acceptance to the second major. For details on the admission requirements of a major, please refer to the corresponding section under the college/school housing the major or consult with the head of the department housing the major.

One of the two majors must be designated as the primary major, but the student's rights and responsibilities are the same in both majors. The advisor of the primary major will serve as the student's registration advisor. Students pursuing a double major will be awarded the degree of their primary major, with a notation of their second major added to their diploma and the Attestation Certificate (see Degree Information on Diplomas and Attestation Certificates within Graduation later in this section of this catalog). The student's academic transcript will indicate all majors completed at the time of graduation.

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

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

Declaration of a Concentration

A concentration allows students more in-depth knowledge of a subject area constituting a particular aspect of their major. Some degree programs offer students one or more areas of concentration. Please refer to the appropriate degree program section for relevant concentration requirements.

To change a concentration, a student must complete the Change of Major Form (available at www.aus.edu/registration/forms) and submit it to the office of their associate dean. The office of the associate dean will email the approved forms to the Office of the Registrar. Approved forms must be received by the Office of the Registrar no later than the end of the Add/Drop period of the following semester/term.

Senior students should declare their choice of concentration(s) no later than the end of the 10th week of classes of the semester preceding their graduation semester/term.

Students approved to declare a concentration that is not listed in their degree program, as described in their catalog of record, but listed in the same degree program as described in the most recent academic catalog will have their catalog of record changed to the first academic catalog where the approved concentration was introduced.

Minor Offerings

Students interested in pursuing knowledge in a secondary field of study are provided the opportunity to enroll in up to two minors while pursuing their degree program graduation requirements. For details, refer to Declaration of Minors hereafter.

Listed below are the minors offered by the university. Detailed information about the minors is given in the catalog section of the college/school offering the minor.

College of Architecture, Art and Design

- Minor in Design Management
- Minor in Film
- Minor in Illustration and Animation
- Minor in Product Design

College of Arts and Sciences

- Minor in Actuarial Mathematics
- Minor in Applied and Computational Mathematics
- Minor in Applied Physics
- Minor in Arabic Language and Literature
- Minor in Biology
- Minor in Data Science
- Minor in English/Arabic Translation
- Minor in English Language and Literature

- Minor in Environmental Policy and Sustainability
- Minor in Environmental Sciences
- Minor in History
- Minor in Integrated Marketing Communications
- Minor in International Studies
- Minor in Journalism
- Minor in Middle Eastern Studies
- Minor in Music
- Minor in Philosophy
- Minor in Psychology
- Minor in Sociology
- Minor in Theatre
- Minor in Women's Studies

College of Engineering

- Minor in Aerospace Engineering
- Minor in Biomedical Engineering
- Minor in Computer Engineering
- Minor in Computer Science
- Minor in Electrical Engineering
- Minor in Engineering Management
- Minor in Environmental and Water Engineering
- Minor in Mechanical Engineering
- Minor in Mechatronics Engineering
- Minor in Renewable Energy
- Minor in Safety and Fire Protection Engineering
- Minor in Transportation Systems

School of Business Administration

- Minor in Accounting
- Minor in Business Administration
- Minor in Economics
- Minor in Entrepreneurship and Innovation
- Minor in Finance
- Minor in Fintech
- Minor in Luxury Marketing
- Minor in Management
- Minor in Management Information Systems
- Minor in Marketing
- Minor in Supply Chain Management
- Minor in Taxation

Declaration of Minors

To be eligible to apply for a minor, students must normally have completed a minimum of 30 credit hours of course work and be in good academic standing. Further requirements might exist. For details, check the catalog section of the college/school housing the minor.

A student cannot declare a minor in his/her major field of study. A student can pursue a maximum of two minors.

To declare a minor, a student must complete the Minor/Double Major Form (available at www.aus.edu/registration/forms) and submit it to the head of the department or coordinator responsible for the minor. The approved form will be emailed to the Office of the Registrar. Forms received by the Office of the Registrar after the end of the add and drop period of a semester/term will be effective as of the following semester/term.

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

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

Minors are noted on the student's academic transcript. They do not appear on the diploma or on the Attestation Certificate.

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

Accelerated Master's Program

The Accelerated Master's Program (AMP) offers an opportunity for AUS undergraduate degree-seeking senior students whose goals, academic capabilities and career planning include master's degree work, to complete up to two master's-level courses (for a maximum of six credit hours) while completing their undergraduate degree program graduation requirements. The master's-level courses may be used towards meeting the graduation requirements of both the undergraduate degree program and the master's degree program corresponding to the student's AMP.

The AMP enhances the educational experience of the qualified undergraduate degree program students through advanced knowledge and skills to expand their career opportunities.

Master's-level courses taken as part of the AMP will be charged within the undergraduate tuition and fees structure.

The following master's-level degree programs offer the AMP option:

College of Architecture, Art and Design

- Master of Urban Planning

College of Arts and Sciences

- Master of Arts in International Studies
- Master of Arts in Media Studies and Practice
- Master of Arts in Teaching English to Speakers of Other Languages
- Master of Arts in Translation (English/Arabic/English)
- Master of Science in Environmental Sustainability and Management
- Master of Science in Mathematics

College of Engineering

- Master of Science in Biomedical Engineering
- Master of Science in Chemical Engineering
- Master of Science in Civil Engineering
- Master of Science in Computer Engineering
- Master of Science in Construction Management
- Master of Science in Data Analytics Engineering
- Master of Science in Electrical Engineering
- Master of Science in Engineering Systems Management
- Master of Science in Machine Learning
- Master of Science in Mechanical Engineering
- Master of Science in Mechatronics Engineering

School of Business Administration

- Master of Science in Accounting
- Master of Science in Economics and Policy
- Master of Science in Finance

Eligibility

Students interested in pursuing the AMP option must, at application time, meet the following general requirements:

- have achieved a minimum cumulative GPA of 3.30
- have earned a minimum of 90 credit hours.

Some master's-degree programs might specify additional requirements. For details, please refer to www.aus.edu/amp. Students are also encouraged to consult with the master's-degree program coordinator and to check the relevant degree program section in the *AUS Graduate Catalog*, or contact the Office of Graduate Studies at ogs@aus.edu.

Application Process

Eligible AUS undergraduate students may apply, during their senior year, for acceptance to the AMP of the AUS master's-level degree program of their interest, by completing the Accelerated Master's Program (AMP) Application Form available at www.aus.edu/registration/forms. The application must be submitted to the coordinator of the master's-degree program. Approved applications are forwarded to the Office of the Registrar, latest by the last day of the add and drop period of a semester/term. Forms received by the Office of the Registrar after the end of the add and drop period of a semester/term will be effective as of the following semester/term.

Registration

Students accepted to the AMP may register for up to six credit hours in master's-level courses concurrently with their undergraduate degree program requirements.

Students must satisfy the needed background or prerequisites for the master's-level courses they wish to enroll in. The master's-level courses must be approved by the master's program coordinator and by the student's undergraduate degree program/minor, as well as the student's associate dean.

Students must be registered in undergraduate courses meeting their undergraduate degree program graduation requirements during the semester/term they register for a master's-level course.

Students in the AMP cannot register for thesis or graduate professional project credit hours.

Registration is managed through the Office of the Registrar. Students must complete the AMP Course Registration Form (available at www.aus.edu/registration/forms). The approved form must be submitted to the Office of the Registrar by the last day of the add and drop period of the registration semester/term.

Tuition fees are calculated based on the undergraduate tuition fee structure.

Undergraduate Graduation Requirements

Master's-level courses completed while at the undergraduate level may be used to satisfy the undergraduate degree program requirements towards major/minor/concentration electives and/or free electives, as identified by the student's undergraduate degree program/minor. Consult the online course catalog or the online class schedule accessible via the AUS student information system to view course classifications.

Grades earned in the master's-level courses will be counted in the calculation of the student's undergraduate cumulative GPA.

Admission to the Master's Program and Transfer of Credit Hours

Admission to the Master's Degree Program

Students who are awarded their bachelor's degree from AUS with a cumulative GPA of 3.00 or above and who meet all the admission requirements of the master's degree program corresponding to the AMP (consult the relevant degree program section in the *AUS Graduate Catalog*) may apply for admission to the master's degree program by completing the regular online graduate application form.

Transfer of Credit Hours

Students meeting the master's-level full admission requirements and admitted to the master's degree program corresponding to the AMP are eligible for transfer of credit hours of master's-level courses successfully completed while at the undergraduate level, provided the Transfer of Credits Hours policy requirements, as stated in the *AUS Graduate Catalog* in effect for the admission semester/term, are met. For details on the current transfer policy, please refer to the Transfer of Credit Hours section under Admission to Graduate Studies of the *AUS Graduate Catalog.*

Students who do not meet the university's minimum requirements for full admission to master's degree programs and students admitted to a master's degree program that does not correspond to the AMP are not eligible for transfer of credit hours of master's-level courses completed while at the undergraduate level.

Graduate Degree Program Residence Requirements

To be awarded the master's degree, students must meet the graduation residence requirements as stipulated in Graduation Requirements/Graduation Residence Requirements of the Academic Policies and Regulations section of the *AUS Graduate Catalog*. In addition, AMP students who later choose the thesis option in the corresponding master's degree program must complete a minimum of three regular semesters in residence at AUS as students of that master's degree program.

Grades and Academic Standing

Course Assessments other than Final Examinations

Course assessments—such as quizzes, midterms, studio reviews and assignments— are scheduled by the course instructor and normally announced in the course syllabus. Missing a course assessment due to a medical emergency, national duty or documented extraordinary circumstances is governed by the following policies.

Missed Assessments Due to Medical Emergencies

In the event that a medical emergency or severe illness causes the student to miss a course assessment, students are responsible for contacting their associate dean as soon as possible to report the medical issue and provide sick leave that covers the time of the assessment submission and certified by University Health Services (UHS). The associate dean of the school/college to which the student belongs will arrange for course instructors to be notified. Course instructors will provide an opportunity to make up the missed assessment or provide an alternative arrangement to account for the missed work.

Missed Assessments Due to National Duty

Students called to UAE National Duty are responsible for contacting their associate dean to report the military service and provide official documentation. The associate dean will arrange for course instructors to be notified. Course instructors will provide an opportunity for makeup of the missed assessment or

provide a satisfactory alternative arrangement to account for the missed work.

Missed Assessments Due to Documented Extraordinary Circumstances

In the event that an extraordinary circumstance causes a student to miss a course assessment, the student is responsible for contacting their associate dean as soon as possible to report the case and submit relevant documentation. If the associate dean of the school or college to which the student belongs approves the case, the associate dean will arrange for the course instructor to be notified. The course instructor will provide an opportunity to make up the missed assessment or provide an alternative arrangement to account for the missed work.

Impact on Attendance Record

Any absences accrued due to a medical emergency, serious illness, national duty or documented extraordinary circumstances will still count toward the stated percentage of allowed absences as detailed in the Attendance and Lateness policy earlier in this section of the catalog.

Examinations

Regular and common final examination schedules are published by the Office of the Registrar at www.aus.edu/academics/registrars-services. If a student is scheduled for more than two examinations in one day, more than three examinations in two consecutive days, or has a time conflict with common examinations, then the student must report to his/her associate dean by the end of the 11th week of classes to make the necessary adjustments to his/her schedule.

Failure to Appear for a Final Examination

A student who fails to appear for the examination will not be permitted to take a make-up examination unless the associate dean for undergraduate studies of the college/school responsible for the course determines that extraordinary circumstances exist and a make-up examination is warranted. The associate dean will then determine whether a make-up examination can be completed as per the make-up examination schedule of the semester/term or an incomplete (I) grade should be awarded and the make-up examination should be scheduled at the beginning of the next semester or summer term. For further details, refer to Incomplete Grades later in this section.

Illness Prior to and During Final Examinations

Students are responsible for taking final examinations during the period scheduled by the Office of the Registrar. If an incapacitating illness prohibits taking a final examination, the student must notify the associate dean for undergraduate studies of the student's school/college and provide complete documentation to University Health Services in advance of the scheduled examination.

Students who begin a final examination are expected to complete it unless a sudden and incapacitating illness requires urgent medical attention. A student whose condition is so serious that medical care is necessary must report immediately to University Health Services (UHS).

If the UHS determines that the medical condition prior to or during the scheduled examination period is serious enough to render a student incapable of taking or completing the examination, then UHS will issue or approve a sick leave for the student. Based on the provided sick leave, the relevant associate dean will determine whether a make-up examination can be completed as per the make-up examination schedule of the semester/term or an incomplete (I) grade should be awarded and the make-up examination should be scheduled at the beginning of the next semester or summer term. For further information, refer to Incomplete Grades later in this section.

The opportunity to complete a make-up examination will not be provided if compelling medical evidence indicates that taking or completing the examination was an option.

Tardiness

If an instructor allows a student who arrives late for a final examination to take the examination as scheduled, no additional time beyond the period scheduled by the Office of the Registrar will be provided.

Grading System

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

The minimum passing grade for any course taken at AUS is C-.

The following grading system is used at AUS:

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

Grades not calculated in the grade point average are:

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

As of the Fall 2021 semester, preparatory courses are graded using the following grading system:

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

Grades earned in preparatory courses do not count in the calculation of the semester and cumulative grade point averages. For further details, see Graduation Requirements/Preparatory Courses later in this section of the catalog.

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

Incomplete Grades

The work for a course must be completed by the end of the final examination period of the corresponding registration semester/term. In the case of unexcused incomplete work, an F grade is given for the missing work and the course grade is computed accordingly. Only in exceptional cases, such as a compelling medical or other emergency certified in writing by a medical or other professional, is a student assigned an incomplete (I) grade in a given course (also see Examinations earlier in this section). The instructor of the course will then process an Incomplete Grade Form (available from the office of the associate dean) through the college/school housing the course and submit it to the Office of the Registrar for final approval and implementation. The Incomplete Grade Form must be submitted within the final examinations period.

An I grade pending beyond the end of the second full week of classes of the next regular semester will revert into either an F grade or the alternative grade indicated by the instructor of the course on the Incomplete Grade Form. It is the responsibility of the student to find out from his/her professor the specific dates by which requirements must be fulfilled.

A student who is on academic probation and who was approved for an I grade in a specific semester/term is eligible for registration for an upcoming semester/term before the final course grade is provided. Where the final grade results in the student being academically dismissed, the courses the student registered for in the semester/term following the semester/term of academic dismissal will be dropped and the semester/term tuition refunded. Where the final grade results in the student being placed on a further academic probation, the student will be required to meet the academic probation maximum registration load requirement by dropping one or more of the courses registered for in the semester/term following the semester/term of academic probation. The semester/term tuition will be adjusted accordingly.

While future registration in a course for which the course with the I grade is a prerequisite is permitted, where the student is eligible for continuation of studies and where the final grade does not meet the minimum passing grade requirement, such a course will be dropped and the student's tuition for the semester/term adjusted accordingly.

Prospective candidates for graduation with incomplete grades will be awarded their degrees in the semester/term where their courses are completed.

In Progress Grades

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

The in-progress work must be completed before the deadline agreed upon with the Registrar, not exceeding the end of the following semester/term. An IP grade pending beyond this time limit will revert into an F grade. It is the responsibility of the student to find out from his/her professor the specific dates by which requirements must be fulfilled.

An IP grade assigned to an internship course will be changed to an N grade when the student is approved to discontinue the in-progress internship course and replace it with another internship course meeting the internship graduation requirement.

Prospective candidates for graduation with In Progress grades will be awarded their degrees in the semester/term where their courses are completed.

No Grade (N) Entries

A No Grade (N) is assigned to a course when an academic integrity violation has been reported and the adjudication process cannot be concluded before the course grade is due for the semester/term. In such cases, the N grade is temporary and the final grade for the course will be entered once the adjudication process is concluded.

Students must remain enrolled in courses for which an N grade was assigned until the academic integrity adjudication process is complete.

If a violation of the Student Academic Integrity Code or the Student Code of Conduct results in suspension or dismissal effective for the semester/term in which the offense occurred, then an N grade will be entered for all the semester/term registered courses, with a provision for a grade penalty for the course(s) where the academic offense was reported.

If suspension or dismissal occurs at the end of a regular semester or a summer term and a letter grade has been assigned in a course, the letter grade will revert to an N grade. The Semester GPA and the Cumulative GPA will be recalculated accordingly, and a Suspended or Dismissed academic standing will be assigned for the semester/term.

For details on transcript notations, refer to Notation of an Academic Integrity Code Violation Penalty under Academic Integrity earlier in this section of the catalog.

Grade Exclusion – First-Year Students

First-year undergraduate students who score a grade of D or F on a course may elect to exclude this grade from counting towards their cumulative grade point average. The grade exclusion can be elected for a maximum of nine attempted credit hours from courses taken during the first year of study at AUS comprising two semesters and one summer term. The excluded grade will remain on the student’s academic transcript but will not count towards the calculation of the cumulative grade point average.

For the purpose of this policy, a first-year undergraduate student is defined as an undergraduate degree-seeking student who has commenced their first year of undergraduate studies at AUS within the last 12 months prior to electing the grade exclusion.

First-year students who transferred to AUS from another institution of higher education with fewer than 18 credit hours granted for transfer are also eligible for this policy.

Repeating Courses

Unless otherwise specified in the course descriptions section later in this catalog or on the course syllabus of courses not published in the catalog, a student may repeat any 100-level and above course, pending seat availability, up to two times. In cases of limited seat availability, AUS may give priority to students who have not yet had the opportunity to take the course for the first time.

During priority registration, the university reserves the right to drop students who are repeating courses that were previously completed with a grade of C- or above. For violations related to registration, refer to the Student Code of Conduct in the Student Handbook, also accessible at www.aus.edu/student-handbook.

Students are allowed to repeat a preparatory course up to Sophomore I standing (less than 45 credits). Students are allowed to repeat WRI 101 or WRI 102 up to Junior I standing (less than 75 credits). Preparatory MTH and PHY courses may be repeated only once.

Only the last entry of the repeated course is counted in the calculation of the cumulative GPA.

Students may not repeat AUS courses at another institution with the aim of transferring credit hours.

Students may not repeat courses in an independent course format.

Class Standing

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

Credit Hours Earned	Class Standing
0–29	First-Year
30–59	Sophomore
60–89	Junior
90 and above	Senior

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

Grade Point Average

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

Quality Points

The quality points earned in a course are calculated by multiplying the grade point value of the letter grade by the number of credit hours the course is worth.

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

Only the last entry of a repeated course is counted in the calculation of the CGPA.

Semester Grade Point Average (SGPA)

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

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

Cumulative Grade Point Average (CGPA)

The CGPA is calculated by dividing the sum of the quality points of courses taken in all semesters/terms by the total number of credit hours of all courses taken in all semesters/terms.

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

Only the last entry of a repeated course is counted in the calculation of the CGPA.

Students who enroll in the English Bridge Program prior to admission to the undergraduate level will have the credit hours and the grades earned in 100-level College of Arts and Sciences courses taught within the context of the English Bridge Program counted in the calculation of their undergraduate CGPA.

Academic Standing

An undergraduate student's academic standing is determined by his/her CGPA as calculated at the end of the semester the academic standing is determined for. A retroactive recalculation of the CGPA resulting from a course repeat (see Repeating Courses earlier in this section) or from grade exclusions for first-year students (see Grade Exclusion – First-Year Students earlier in this section) does not entail an adjustment of the academic standing of previous semesters/terms.

Matriculated English Bridge Program students start their first undergraduate semester/term in good standing.

Good Academic Standing

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

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

Placement on Academic Probation

All undergraduate students are placed on academic probation at the end of a semester in which the CGPA falls below 2.00. A full-time undergraduate student on Academic Probation 1 is allowed to carry a maximum semester registration load of 16 credit hours. A full-time undergraduate student who is on Academic Probation 2 may only register for a maximum semester registration load of 13 credit hours. Thereafter, an undergraduate student must be in good academic standing (minimum CGPA of 2.00) to continue at AUS.

An undergraduate student who registers for a summer term while on academic probation and who fails to remove his/her academic probation by the end of that summer term will maintain his/her academic probationary status.

Undergraduate students placed on academic probation must sign a contract with the Academic Support Center (ASC). Probation students are part of the Academic Thrive Program (ATP); they are expected to fulfill the obligations of their probation contract and meet on a regular basis with their ASC academic coach. Students who do not meet all the ATP contract obligations may not be able to continue at AUS and will normally not be granted permission to resume studies following interruption of studies. For further details on resuming studies, refer to Reactivation of Student Records Following Interruption of Studies earlier in this section of the catalog.

Removal of Academic Probation

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

Academic Dismissal

An undergraduate student who fails to remove his/her academic probation by the end of the second consecutive semester on academic probation, with the academic probationary status maintained at the end of the interim summer term, is academically dismissed and will not be allowed to continue as a student at AUS.

Students seeking reinstatement following academic dismissal must file a Reinstatement Petition form with the Academic Support Center (ASC) prior to the official deadline. The Reinstatement Petition, eligibility criteria for application and submission deadlines are available from the ASC. Reinstatement petitions may be submitted only for the regular semester immediately following the academic dismissal semester. Reinstatement following academic dismissal is granted only in exceptional circumstances.

University Honors and Awards

Dean's List

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

To be placed on the Dean's List in a given semester, a student must satisfy the following criteria:

- registered and earned a minimum of 14 credit hours in gradable (not Pass/Fail) courses in the semester. Credit hours of preparatory courses do not generate earned hours.
- achieved a minimum semester GPA of 3.50
- be in good academic standing

- had no failing grades in any of his/her courses for the semester
- had no incomplete or missing grades in the semester
- had no record of sanctions resulting from violations of the Student Academic Integrity Code or Student Code of Conduct for the semester

Students registered at an institution with which AUS has a study abroad agreement are eligible for evaluation towards placement on the Dean's List. The AUS Dean's List conditions detailed above apply.

Chancellor's List

Students placed on the Dean's List of honor students who meet the following criteria, are further honored by the Office of the Vice Chancellor for Academic Affairs and Provost:

- they were placed on the Dean's List for both the fall and spring semesters of an academic year
- their SGPA average of the Dean's List semesters is 3.75 at a minimum.

Such students are placed on the Chancellor's List and are honored during the fall Honors Convocation of the following academic year.

Graduation Honors

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

Student Petitions and Appeals

Student Responsibility

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

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

Petitions

Students may petition for exceptions to academic policies of the university. Petitions are processed through the online university petition system available at digitalforms.aus.edu.

Registration-related petitions must be submitted: by the Monday of the week preceding the first week of classes of the semester/term.

Approved petitions are processed by the Office of the Registrar and kept on record in the electronic student file maintained by the Office of the Registrar.

Appeal of a Grade

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

A student who believes that they have a legitimate concern regarding a final course grade must inform the professor responsible for the course in writing and then discuss the matter with the professor. If a resolution cannot be reached, the student may contact the head of the department offering the course in writing to file a formal grade appeal no later than seven working days after the makeup examination day. The department head will review the case and attempt to mediate a resolution. If a mediated resolution cannot be reached, the department head will provide a written response to the student and the course instructor with an initial decision on the case. The student may elect to elevate the matter through the department head to a grade appeal review committee appointed by the dean of the college/school offering the course (or appointed designee). Based on the committee's formal recommendation, the dean (or appointed designee) may grant or deny the appeal and notify the student and the professor responsible for the course of the decision. If a change of grade is warranted, the dean (or appointed designee) will inform the Registrar of the grade change. The decision of the dean is final.

Appeal of an XF Grade

In cases where a failing grade of XF was assigned to a course as a result of an academic offense penalty, a student may petition during the semester/term of graduation, or at the time of complete withdrawal from AUS, to have the grade converted to an F on the academic transcript. The petition is processed through the Office of the Vice Provost for Undergraduate Affairs and Instruction via the online university petition system available at digitalforms.aus.edu. Approved petitions are processed by the concerned degree audit specialist at the Office of the Registrar only after the student has been awarded their degree or after the student's Complete Withdrawal Form has been processed.

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

Appeal of Other Academic-Related Issues

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

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

Graduation

Graduation Requirements

Catalog

The graduation requirements for any individual student are determined by the catalog that was effective when the student matriculated in the major, referred to as the student's catalog of record. A student may choose to follow the catalog effective for any semester/term in which they were a registered student in their current program of study. To change catalogs, a student must file a Change of Academic Catalog Form (available at www.aus.edu/registration/forms) with the Office of the Registrar no later than the end of Add/Drop period of the student's graduation semester/term.

A student who changes majors may petition to revert to the catalog in effect at the time of matriculation into the university. Petitions are submitted via the online university petition system available at digitalforms.aus.edu, no later than the Monday of the week preceding the first week of classes of the student's graduation semester/term. Approved petitions are processed by the Office of the Registrar.

Every student is personally responsible for meeting all graduation requirements as detailed in his/her catalog of record.

If a required course within a program changes its number of credit hours, then the number of credit hours required by the program for graduation may, at the discretion of the college/school, change by the same amount provided the minimum total number of credit hours for graduation is 120 and the CGPA is at least 2.00.

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

Disclaimer: Course information, content and prerequisites may be subject to change as a result of the university's commitment to a process of continual improvement in academic programs. Students must comply with the most up-to-date course requirements. Policies, procedures and academic regulations are effective at the time of publication of the catalog and may be subject to change. Students are responsible for adherence to the most up-to-date policies, procedures and academic regulations.

Courses

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

Preparatory Courses

Preparatory courses are intended for students with a deficiency in a specific subject matter.

Credit hours generated by preparatory courses do not count in the earned hours and grades earned in preparatory courses do not count in the SGPA and the CGPA.

Preparatory courses do not count towards meeting degree program graduation requirements.

Passing Grade Requirement

The minimum passing grade requirement for a course to meet any area of the graduation requirements and to satisfy any course prerequisites and/or co-requisites is C-.

General Education Program

Mission Statement

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

Program Goals and Outcomes

The General Education Program provides students with opportunities to:

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

Outcomes

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

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

Outcomes

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

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

Outcomes

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

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

Outcomes

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

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

Outcomes

- Explain the ways in which individuals, groups, institutions or societies behave and influence one another
- Analyze and describe how social, cultural, political or economic conditions affect individuals
- Analyze and explain human behavior in a variety of contexts

- Assess the ethical dimensions of actions and explain the relationships between individual moral choices and professional responsibility

Goal F. Recognize the value of the natural sciences

Outcomes

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

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

Outcomes

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

Goal H. Develop the skills and abilities to thoughtfully seek information, critically analyze sources and clearly formulate complex ideas

Outcomes

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

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

Outcomes

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

General Education Requirements

All students must successfully complete a minimum of 36 credit hours in core and non-core general education requirements (GER) with a minimum grade of C- in order to graduate. In addition, students must successfully complete one course from each area of the major-designated requirements. Information on specific courses meeting each of the general education areas is available at www.aus.edu/general-education-program.

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

Core Requirements (minimum of 15 credit hours)

Students must successfully complete a minimum of 15 credit hours in courses meeting the following core general education areas. Credit hours earned in these areas cannot be counted towards other general education requirements or other degree program requirements. Credit hours counted towards a specific core general education area cannot be counted towards another core general education area.

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

Non-Core Requirements (minimum of 21 credit hours)

Students must successfully complete a minimum of 21 credit hours in courses meeting the following non-core general education areas. Courses in these areas may also meet major requirements and program core requirements. In cases where a course is considered both a non-core general education requirement and a major or program core requirement, credit hours for the course are counted only once towards the overall credit hours earned and, in the degree program literature, are included in the total credit hours of the major requirements area or the program core requirements area the course satisfies.

- natural sciences: a minimum of six credit hours
- mathematics: a minimum of three credit hours
- statistics: a minimum of three credit hours
- communication: a minimum of nine credit hours in 100-level or above writing (WRI) courses and/or 200-level or above English (ENG) courses in this area. WRI 101 Academic Writing I and WRI 102 Academic Writing II should be completed in the first year or before completion of 30 credit hours and cannot be repeated once the student has earned 75 credit hours. Either ENG 203 or ENG 204 can be used to meet the communication requirement.

Major-Designated Requirements

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

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

Innovation and Entrepreneurship Requirement

All students must successfully complete three credit hours towards the innovation and entrepreneurship requirement. IEN 301 - Innovation and Entrepreneurship Mindset - meets this requirement.

The credit hours earned from IEN 301 cannot be counted towards other degree program graduation requirements.

Students who transfer to AUS may satisfy the innovation and entrepreneurship requirement if the course being transferred meets the outcomes of IEN 301.

Requirements of a Major

Each student in a degree program must successfully complete at least 36 credit hours in courses that are specific to the major and distinctive to the major subject area. The specific requirements for a major are listed as major requirements, program core requirements, concentration requirements and electives, and major electives, under the corresponding degree program section in this catalog.

Some major requirements and program core requirements may count toward fulfilling non-core or major-designated general education requirements; credit hours of such courses will not double count.

Requirements for a Double Major

To graduate with a second major, students must satisfy all of the graduation requirements of the degree programs of the two majors requested. Some courses may be counted toward the fulfillment of both degree programs' graduation requirements.

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

Double-major students will be awarded the degree of the primary major degree program, with a notation on the diploma indicating completion of a second major.

Internships

Internships that contribute to meeting graduation requirements must be the

equivalent of a minimum of five consecutive weeks of full-time employment. Some degree programs require internships of a longer duration. Internship offerings and requirements are listed under the various degree program graduation requirements.

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

Free Electives Requirement

To satisfy the free electives requirement, students must successfully complete at least two courses with a minimum of six credit hours. Students pursuing two concentrations meet the minimum of six credit hours in free electives, considering their free choice of a second concentration.

Some degree programs might require more than the minimum of six credit hours.

In addition, a college/school may exclude certain courses from being counted as free electives. For more information, please refer to the degree requirements of the corresponding degree program section later in this catalog.

Requirements of a Minor

Minor programs consist of a minimum of 12 credit hours. At least 50 percent of the credit hours required for a minor must be in courses at or above the 300 level.

At least six credit hours of the courses at or above the 300 level must be successfully completed in residence at AUS. Fifty percent of all credit hours required for the minor must be successfully completed in residence at AUS. Coursework completed in the context of a summer/winter term outside AUS does not meet the residence requirements.

Students must meet the prerequisite requirements for courses required for the minor.

The minimum cumulative GPA for minor courses is 2.00. The specific course requirements constituting a minor are listed in the corresponding college/school section in this catalog.

Courses used to satisfy a degree program's graduation requirements can be used towards meeting the requirements of a minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of a minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting a minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

The catalog in effect for the student's major will normally be followed for the audit of the minor. If the minor is not listed in the student's catalog of record, then the first catalog in which the minor is listed will be applied. However, a student may choose to follow the catalog effective for any semester/term in which they were a registered student in their current major, independent of their catalog of record.

Graduation requirements of the minor(s) must be completed before the degree is awarded. Students are encouraged to follow the advice of their college/school and of the college/school housing the minor when changing their minor's catalog to ensure timely graduation.

Academic Standing Requirement

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

Graduation Residence Requirements

Candidates for the bachelor's degree are expected to complete their last semester/term in residence at the university unless registered at an institution with which AUS has a study abroad agreement.

A minimum of 36 credit hours of 300- and/or 400-level course work must be successfully completed in residence at AUS to obtain a bachelor's degree. Coursework at the 300- and/or 400-level completed at an institution with which AUS has a study abroad agreement will meet the AUS upper-level requirement if the courses have been pre-approved by the relevant college/school.

Note that coursework completed in the context of a summer/winter term outside AUS does not meet graduation residence requirements.

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

Time Limit on Duration of Study

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

Graduation Procedures and Diploma Information

Participation in the Commencement Ceremony

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

Prospective candidates for graduation in a fall or spring semester are eligible to participate in the corresponding semester commencement ceremony.

Prospective candidates for graduation in a spring semester who are left with only a zero-credit internship to be completed in the spring semester, are eligible to participate in the preceding fall semester commencement ceremony.

Prospective candidates for graduation in a summer term are eligible to participate in the preceding spring semester commencement ceremony.

Further details are available at www.aus.edu/academics/registrars-services.

Application for Graduation

Candidates for degrees file an Application for Graduation form in the Office of the Registrar in their last expected semester/term of study. The Application for Graduation form is emailed to the prospective candidates for graduation by the Office of the Registrar at their AUS email account. The deadlines for application submission are published in the academic calendar in this catalog, as well as at www.aus.edu/commencement.

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

Conferral of Degrees

Only students who have successfully completed degree requirements by the end of the semester/term for which they have applied to graduate are certified for conferral of a degree.

Conferral of the degree is noted on the academic transcript of the graduate, along with the date of graduation. Diplomas are awarded accordingly. Awarded diplomas are issued only once.

Names on Diplomas

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

Degree Information on Diplomas

The diploma will list the full name of the degree program awarded, as well as the applicable concentration(s).

The diploma of students graduating with a double major will also list the second major.

Completed minors appear on the student's academic transcript but not on the diploma.

Graduation Honors

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

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

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

Attestation of Diplomas and Transcripts

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

Tuition, Grants and Scholarships

Tuition and Fees

Tuition for full-time undergraduate students is given in the table below. The full-time course load is 12 to 16 credit hours. Students registering for more than 16 credit hours are charged a supplementary fee for each additional credit hour.

Part-time students are charged per credit hour regardless of their major.

Additional undergraduate fees and housing charges are given in the tables that follow.

Non-degree and transient students must pay the same tuition and fees as regular students.

Tuition and fees of visiting students coming through third-party providers are governed by annual financial agreements. Visiting students applying directly to AUS are charged the same tuition and fees as regular students.

Tuition payment for exchange students attending AUS is governed by the specific terms of the exchange agreement.

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

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

AUS reserves the right to revise tuition and fees. Tuition schedules are published prior to the beginning of the fall semester each academic year.

Tuition (in AED)		
	Regular Semester	**Summer Term**
English Bridge Program Tuition	36,012	4,688 per contact hour*
Undergraduate Students Registered in All Majors		
Less than 12 credit hours	4,825 per credit hour	4,688 per credit hour
12 to 16 credit hours	55,438	-
Over 16 credit hours	55,438 + 3,696 per credit hour exceeding 16 credit hours	-

* Courses that include a laboratory will be charged an additional Lab/Technology Fee B rate (see Conditional Fees table hereafter).

Compulsory Fees (in AED)			
Fee Type	**Description**	**Regular Semester**	**Summer Term**
Seat Reservation Deposit	For all admitted applicants. Non-refundable fee. Deductible from student's tuition if applicant joins AUS in the semester/term of admission.	5,000	5,000
Student Activities	All students	422*	159*
Industry Credentials and Skills Fee***	All students	70*	
Medical Coverage *Medical coverage fees for students who are not registered in any specific semester are dependent on the visa status of the student and the plan selection in the previous semester.*	**Al Buhaira National Insurance Student Health Plan:** For AUS-sponsored undergraduate students, and for undergraduate students who are not on AUS sponsorship and who do not have their own private insurance	600*	300*
	AUS Health Service Student Health Plan: For all undergraduate students who are not on the Al Buhaira National Insurance Student Health Plan and are covered by their own private health insurance, as well as for UAE nationals	300	150
	University Hospital Sharjah Supplemental Student Health Plan: Compulsory for all students regardless of selected health insurance plan	112.50**	45*

* 5% VAT charge applies

** Premium can be waived for University Hospital Sharjah Supplemental Student Health Plan only if the student is not sponsored by AUS, is on the AUS Health Service Student Health Plan and his/her private insurance covers University Hospital Sharjah. Students will be required to provide proof of coverage to apply for the waiver.

*** Provides all enrolled students unlimited, discounted access to a third-party platform where they can earn professional certifications and micro-credentials that can help boost internship opportunities and post-graduation employment.

Conditional Fees (in AED)		
Lab/Technology Fee A	Applies for each registered course that has Lab/Tech Fee Rate A noted in its course description	1 ,552
Lab/Technology Fee B	Applies for each registered course that has Lab/Tech Fee Rate B noted in its course description	1 ,700
SBA Software Charge	Charged to SBA courses using a specialized software	630*
Internship Registration Fee	Charged to students registered for a 0-credit hour internship	200

* 5% VAT charge applies

Student Residential Halls Fees (in AED)			
Fee Type	**Description**	**Regular Semester**	**Summer Term**
Utilities Service Fee	Fee automatically added to any reserved residential hall room	290*	150*
Residential Halls Maintenance Deposit	One-time fee applied when students first register for residential halls–refundable after cancelation**	1,000	
Room Type	**Description**	**Regular Semester**	**Summer Term**
Private	Single occupancy with private bath and kitchenette	15,000***	6,890***
Semi-Private	Single occupancy with a shared bath and kitchenette	11,000***	4,880***
Sharing	Double occupancy with a shared bath and kitchenette	7,000***	3,710***

* 5% VAT charge applies

** Applicants who cancel their room reservations after the deadline set by Student Residential Life will be charged AED 500, which will be deducted from the Residential Halls Maintenance Deposit.

*** Undergraduate degree-seeking students and English Bridge Program students staying in the residential halls for the first time will benefit from a discount structure. For details, refer to Residential Halls Discount Structure hereafter.

Fines/Charges (in AED)	
Late Payment (if tuition and fees are not settled by the first due date)	500*
Reinstatement Fee (if fees are not settled by the second due date)	1,500*
Declined Credit Card (per transaction for deferred payments if credit card is declined upon charging)	500*
No-Show Penalty (if a student does not show up for one or more registered courses)	1,500*

* 5% VAT charge applies

Residential Halls Discount Structure

Effective Academic Year 2024–2025, undergraduate degree-seeking students and English Bridge Program students who are staying in the AUS residential halls for the first time benefit from a discount structure. This structure provides sustained financial support throughout the students' academic journey at AUS as shown in the table that follows:

Year of Joining AUS	Residential Hall Discount
Year one	25% per semester/term
Year two	20% per semester/term
Year three	15% per semester/term
Year four and beyond	10% per semester/term

The year of joining AUS includes the fall, spring and summer terms of one academic year.

For inquiries regarding the residential halls discount structure, contact the Residential Halls Office at res-halls@aus.edu.

Payment Methods

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

AUS accepts the methods of payment listed below. For the updated payment terms of a specific semester/term, please consult the published payment guide for the relevant semester/term (available at www.aus.edu/admissions/payment-guide).

- online payment by credit card through the AUS payment portal
- direct transfers to Sharjah Islamic Bank Account No. 0011-200170-001, IBAN number: AE02 0410 0000 1120 0170 001 (student's name and ID number must be noted on transfer)
- direct cash deposit at Al Ansari Exchange (student's name and ID number must be noted on the transfer)

A charge of AED 500 + 5% VAT is added if a credit card authorization payment is declined.

All student financial transactions with the university are processed through the Student Accounts Office located on the mezzanine floor of the Main Building. Questions concerning student accounts should be directed to the Student Accounts Office at studentaccounts@aus.edu.

Deferment of Tuition and Fees

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

- 60 percent of the tuition and fees have been paid by the payment deadline.
- The student has a clean payment history.
- The credit card authorization is completed by the student through the AUS payment portal and is approved by a Finance Department official.

Late Fees and Fines

All university students must adhere to university deadlines, rules and regulations. Late fees and fines, with 5% VAT if applicable, may apply for late book returns, parking violations, breakage, late tuition payment, etc.

Grants and Scholarships

AUS offers a number of grants and scholarships to support English Bridge Program students and undergraduate degree-seeking students.

Decisions related to the award of grants and scholarships are made irrespective of race, color, gender, religion, disabilities, age or national origin.

For more information, please contact the Office of Financial Grants and Scholarships, located on the mezzanine floor of the Main Building; call +971 6 515 2057, 2060, 2065 or 2072; or visit www.aus.edu/scholarship.

Applications and Renewal Forms

Applications and renewal forms are available online at www.aus.edu/scholarship. Online application forms for grants and scholarships will only be active during application period.

Application and renewal forms, along with all required supplementary material, must be submitted by the deadlines published on the Office of Financial Grants and Scholarships website.

Some grants/scholarships do not require submission of an application or a renewal form. For details, refer to the specific grant/scholarship section.

Custody of Records

All documents submitted at the time of applying for a scholarship/grant or renewing an application for scholarship/grant are the property of AUS and, as such, are part of the student record that is under the custody of the Office of Financial Grants and Scholarships. The university is not required to provide (or allow the making of) copies of these documents. The university Student Privacy Rights policy applies. For details, please refer to the specific policy text in the Student Records section earlier in this catalog.

Renewal of Grants/Scholarships

Renewal of all AUS grants and scholarships is subject to students meeting the terms and conditions mentioned on their grant/scholarship offer letter.

Students who commit a Student Conduct Code violation that results in conduct probation or a greater sanction will not be eligible for continuation of their financial grant/scholarship. Likewise, students who commit an Academic Integrity Code violation that results in a sanction will not be eligible for continuation of their grant/scholarship.

Time Limit on Grants/Scholarships

AUS provides grants and scholarships based on the stipulated degree requirements of each major, as outlined below:

- 126 credit hours or less: maximum of 8 semesters
- 127–141 credit hours: maximum of 9 semesters
- 142–150 credit hours: maximum of 10 semesters
- 151 credit hours or more: maximum of 11 semesters

This duration is calculated from the time of matriculation as a first-time freshman.

Students approaching the maximum number of semesters for their grant or scholarship will be contacted by the Office of Financial Grants and Scholarships. If an extension is needed, they may submit an appeal for review. For details, refer to the Appeal of a Financial Grant/Scholarship section hereafter. Grants and scholarships are provided for a maximum of one semester of study in the English Bridge Program.

Some grants/scholarships may be provided for shorter time periods or be semester specific. For details, refer to the specific grant/scholarship section.

Maximum Award for Grants/Scholarships

Students are allowed to receive grants/scholarships from AUS as well as external sponsorships/scholarships. However, the total amount received from AUS and/or from external sponsorship/scholarship cannot exceed 100 percent of the amount of tuition for a given semester or term.

Returning Students

Financial Grant

Returning students may apply for a financial grant prior to the deadline published on the Office of Financial Grants and Scholarships website. For details, see Financial Grant hereafter.

Merit Scholarship

Returning students who received a merit scholarship at the time of discontinuing their studies at AUS may petition for a reinstatement of the merit scholarship by emailing the Office of Financial Grants and Scholarships at scholarship@aus.edu.

Grants

Family Tuition Grant

Families with more than one child simultaneously enrolled at AUS are eligible for a Family Tuition Grant whereby a tuition discount of 25 percent is accorded to each sibling after the first. The 25 percent discount is granted for both tuition (for a maximum of 16 credit hours) and lab/technology fees. The following conditions must be met:

- siblings are enrolled in a regular semester as full-time undergraduate degree-seeking students or as English Bridge Program students
- siblings are enrolled in a summer term in credit-bearing courses

Siblings of students who are receiving a 100 percent scholarship from AUS are not eligible for the family tuition grant.

Eligible students must complete the Family Tuition Grant Application form available at www.aus.edu/scholarship and submit it to the Office of Financial Grants and Scholarships by the deadlines published on the Office of Financial Grants and Scholarships website.

The Family Tuition Grants are awarded at the end of the add and drop period of the given semester/term, provided the full-time enrollment condition is met.

Financial Grant

AUS provides need-based financial grants for full-time students who demonstrate financial need as determined by the Office of Financial Grants and Scholarships.

A financial grant normally applies toward tuition for a maximum of 16 credit hours. Students on financial grant who live on campus in sharing rooms are granted partial assistance toward their residential hall fees.

A financial grant is normally awarded in a regular semester for two consecutive semesters. New and returning students joining AUS in a summer term could be

awarded a financial grant in that summer term, provided eligibility conditions are met. The financial grant of enrolled students may apply to AUS summer terms, provided the student was on financial grant in the spring semester of the same academic year and is registered in credit-bearing courses for the summer term.

For information on eligibility for the initial award, see the Office of Financial Grants and Scholarships website at www.aus.edu/scholarship.

Study Tour Grant

Students receiving a financial grant from AUS who enroll in a study tour may be eligible for funding to help supplement tour costs. Eligibility and the amount of funding awarded are determined based on the application and the student's financial situation.

The study tour grant application form is available from the International Exchange Office or the Office of Financial Grants and Scholarships. The form must be received by the Office of Financial Grants and Scholarships at least five weeks prior to the commencement of the study tour.

Scholarships

Scholarships for First-Time Students

Subject to available budget, first-time students who demonstrate academic excellence in their high school averages for Grades 10 and 11 may be eligible for a **Merit Scholarship**. For the purpose of this policy, a first-time student is defined as an undergraduate degree-seeking student who has commenced their first semester of undergraduate studies at AUS and who has not transferred from another institution of higher education.

Highly qualified first-time students may apply for the **President's Scholarship** (for applicants who have completed their secondary education outside the UAE) or the **Chancellor's Scholarship** (for applicants who have completed their secondary education in the UAE).

Partner Sharakah program schools can nominate one exceptional AUS applicant from their school for a **Sharakah School Scholarship**. The Sharakah School Scholarship cannot be combined with a financial grant or a Merit Scholarship, but can be combined with all other scholarships offered by AUS.

For information on scholarships for first-time students, see the Office of Financial Grants and Scholarships website at www.aus.edu/scholarship.

Scholarships Recognizing Students on the Dean's and Chancellor's Lists

Subject to available budget, students placed on the Dean's and Chancellor's Lists at the end of the fall or spring semesters are eligible for a scholarship. This remission is applicable to the semester immediately following the semester when the student was placed on the Dean's List and/or Chancellor's List, provided that in this semester the student is enrolled as a full-time student.

Application forms are not required. The **Dean's List Scholarship** and **Chancellor's List Scholarship** are not available in the summer.

For information on the Dean's List Scholarship and Chancellor's List Scholarship, see the Office of Financial Grants and Scholarships website at www.aus.edu/scholarship.

Currently enrolled students who have completed 60 credit hours of study or more at AUS and have achieved academic excellence (CGPA 3.9 or above) will be evaluated for the **Outstanding Academic Performance Scholarship**.

Application forms are not required. Evaluations for the scholarship will be conducted every spring semester, with the 10 top-performing students being selected as awardees. For information on this scholarship, visit www.aus.edu/scholarship.

Scholarships for Continuing Students Excelling in Extracurricular Activities and Athletics

AUS offers the following scholarships to continuing degree-seeking students who excel in extracurricular activities and athletics:

- Active Student Scholarship
- Most Outstanding Active Student Award
- Athletic Scholarship

For information on scholarships for extracurricular activities and athletics, see the Office of Financial Grants and Scholarships website at www.aus.edu/scholarship. Students interested in applying may contact the Office of Student Experience or email studentexperience@aus.edu.

Endowed Scholarships

AUS offers a number of need-based endowed scholarships, which have been made possible through generous contributions from individuals and organizations. will be considered. Students selected for an endowed scholarship will be notified by the Office of Financial Grants and Scholarships.

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

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

For information on Endowed Scholarships, see the Office of Financial Grants and Scholarships website at www.aus.edu/scholarship.

AUS Students on International Exchange Programs

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

In cases where the AUS student pays tuition and/or housing fees directly to AUS for study abroad, the student will continue to use his or her AUS grants and AUS-funded scholarships for that semester abroad.

In all other cases of students studying abroad, grants and AUS-funded scholarships will not be awarded.

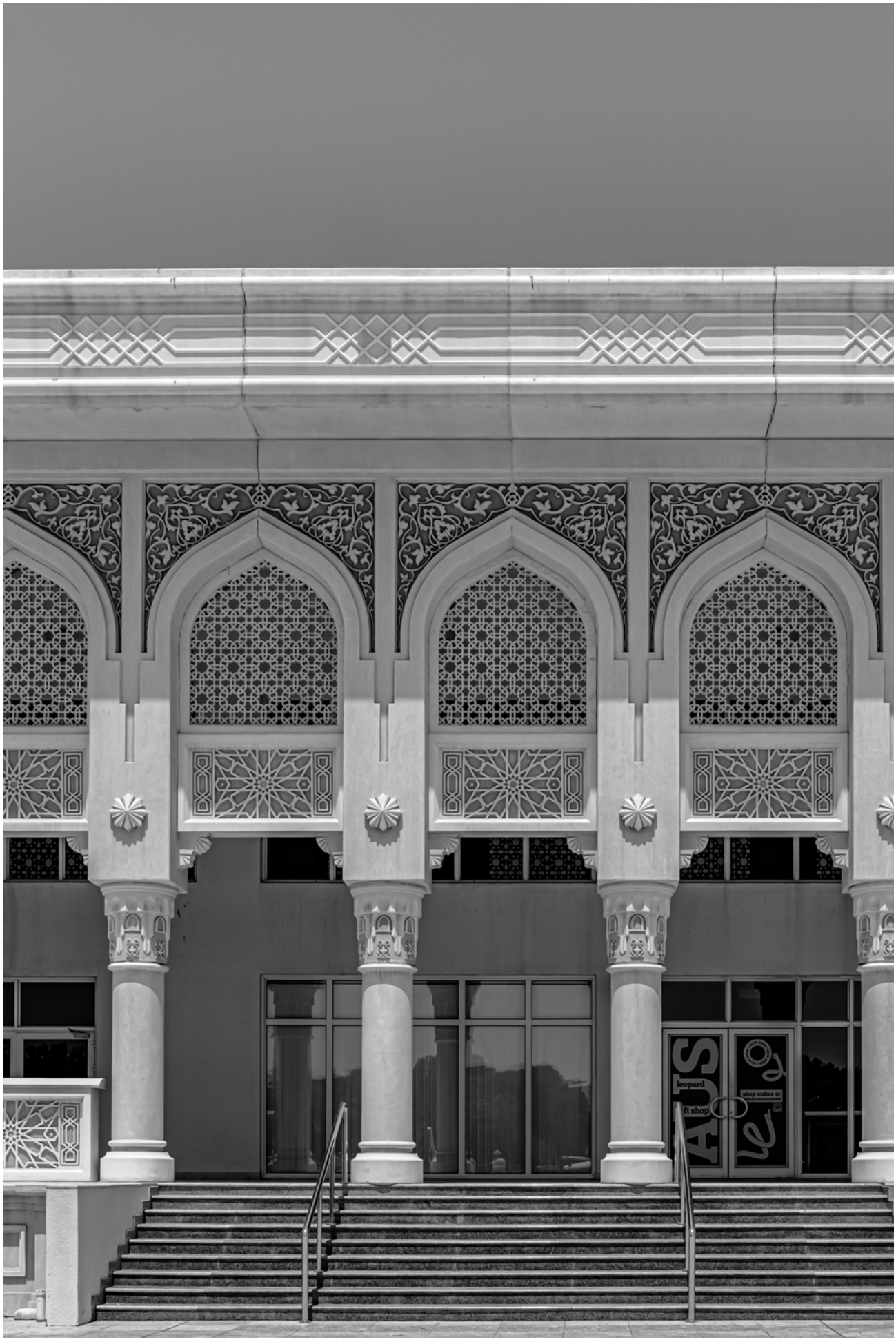
Appeal of a Financial Grant/Scholarship

Students who have exceeded the maximum number of semesters or who are facing extenuating financial circumstances may submit an appeal clearly explaining the situation by email to scholarship@aus.edu. Appeals must be received one week prior to the beginning of the semester/term for which the exception is requested.

Sponsorship Liaison Services

Sponsorship Liaison Services is the main link between external organizations and their sponsored AUS students. Sponsorship Liaison Services provides various support services to both the sponsoring organizations and sponsored students, including providing assistance with the enrollment procedures, communicating progress reports, offering guidance, coordinating financial-related matters with the AUS Finance Department, and arranging for meetings between sponsors and students.

For inquiries regarding sponsorship opportunities, please contact Sponsorship Liaison Services at +971 6 5151000, submit a query on sponsors@aus.edu or visit www.aus.edu/sponsorship-liaison-services.


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College of Architecture, Art and Design

Dean
Joseph Colistra

Associate Dean for Undergraduate Affairs
Ahmed Mokhtar

Associate Dean for Research and Strategic Initiatives
Michael Hughes

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

All its undergraduate programs have received accreditation from the UAE Ministry of Higher Education and Scientific Research. The Bachelor of Architecture program is further accredited by the National Architectural Accrediting Board (NAAB) of the United States.

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

Against this background, the college is committed to the primary objective of providing its students with relevant, professional instruction in the fields of architecture, design management, film and new media design, graphic design and interior design.

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

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

- an environment that encourages achievement and personal growth
- a faculty of professionals who balance continuing scholarship and creative work with their desire for excellence in teaching
- an advising and student counseling system that tracks student development and progress
- a general education curriculum that offers a solid foundation
- a clear and consistent approach that is evident throughout the curriculum
- a variety of courses that are continually updated to reflect rapidly changing design practices and the growing role of digital communication
- a respect for culture, traditions and needs of society

Degree Programs

CAAD offers the following undergraduate degree programs:

- Bachelor of Architecture
- Bachelor of Interior Design
- Bachelor of Science in Design Management
- Bachelor of Science in Film and New Media Design
- Bachelor of Science in Graphic Design

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

Minor Offerings

CAAD offers the following minors:

- design management
- film
- illustration and animation
- product design

Details on each minor are provided in the Department of Art and Design section later in this part of the catalog.

Career Opportunities

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

- architecture, environmental design, interior design, urban design, urban planning
- graphic design, advertising, packaging design, illustration, digital media, animation, computer simulations, video, photography, printmaking
- communications and public relations, fine arts and cultural arts administration, gallery management, advertising campaign planning

Special Notes

Space Availability

Formal admission to majors in the College of Architecture, Art and Design is competitive due to the number of seats available in the second year of each major.

Formal admission to a student's major requires meeting a specific set of requirements. For details, refer to Formal Admission to the Major within the specific degree program section hereafter.

Year Status

With the exception of the design management major, year status in the College of Architecture, Art and Design is determined by enrollment in the major studio, regardless of the total number of credit hours earned, and is referred to as studio year status.

Computer Requirements

In order to make full use of the learning environment, in-class collaboration and work in groups on multidisciplinary projects, all entering undergraduate students must own a laptop or an Internet-capable device, meeting minimum specifications recommended by the university. These specifications are available on the IT FAQ site here: https://go.aus.edu/faq/computer-requirements. Students can email itservicedesk@aus.edu or call +971 6 515 2121 for any related questions. In addition, computer devices in specialized and technical labs are accessible to AUS students.

Students majoring in architecture, interior design, film and new media design, or graphic design are required to have a personal laptop computer at the beginning of their third year. Students in the design management program must have a personal laptop computer prior to taking DES 300. The laptop must meet the minimum specifications determined by CAAD and communicated to the students every year. Laptops that do not meet these minimum specifications may not adequately run software required to complete course work.

Course Selection

Students are cautioned that the courses offered for registration are subject to change. The College of Architecture, Art and Design will make every effort to monitor student progress through the advisement process; however, students are responsible to make course selections based on the stated degree requirements, subject to the listed prerequisites.

Studio Supplies

Supply expenses for studio courses are in addition to tuition fees, and lab fees may apply for some courses. However,

students are provided with an initial credit to print and plot large-format drawings.

Ownership of Student Work

American University of Sharjah (AUS) confers on a student the ownership of intellectual property created by the student, with certain exceptions. However, AUS retains the right to use student work for educational, promotional, scholarly and accreditation purposes. This includes, but is not limited to, displaying student work in exhibitions, publications and portfolios and retaining the right to make the work available in publicly accessible electronic archives on social media and on websites. In all such instances, AUS will ensure that appropriate credit will be given to the student(s) as the original creator.

Responsibility for Equipment

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

Foundations Year Program

Philip Sheil, Director

The foundations year program is an autonomous one-year program that supports the common educational requirements for all fields of study within the College of Architecture, Art and Design. As such, the program provides the basic design education that will enable students to function on appropriate practical, theoretical and critical levels in their sophomore (second) year.

Program Goals

The foundations year program aims to achieve three instructional objectives:

- competence in the fundamental skills and concepts of design analysis, representation and presentation through studio-based exercises and projects
- familiarity with the historical implications and chronology of design conventions through in-class lectures and written assignments
- a basic proficiency in analog and digital technologies through exercises and projects that are integrated within the studio context

Program Outcomes

Upon completion of the foundations year program, students should be able to:

- engage in design analysis, representation and presentation
- articulate the historical implications and chronology of design conventions
- apply analog techniques and digital technologies

The foundations year program utilizes three distinct teaching formats in order to provide a broad and inclusive introduction to design methods and practice. Studio courses, which form the core of the foundations year program, encourage one-on-one student/professor interaction and allow the student to develop an independent design process. History courses are taught in a lecture context where information and ideas are disseminated in a classroom setting using visual images to support learning. Professors interact with students on various levels through the use of traditional lectures, digital media, network software and digital storage systems.

Within the foundations year program, 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.

Foundations year program courses are taught by professors from all fields of study in the College of Architecture, Art and Design. This professional collaboration between disciplines at the foundations level initiates early student dialogue with faculty and provides the program with a healthy influx of cross-disciplinary expertise and discourse.

The foundations year program consists of the following courses:

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

Architecture and interior design students are required to successfully complete the foundations year program courses to be considered for formal admission to their chosen major.

Graphic design and film and new media design students are required to successfully complete DES 111, DES 112, DES 131, DES 132 and either DES 121 or DES 122 to be considered for formal admission to their chosen major.

Design management students are required to successfully complete DES 111, DES 112 and DES 132 for formal admission to the major.

The foundations year program studio courses DES 111 and DES 131 cannot normally be repeated. If a student is in good academic standing and there are extenuating documented circumstances that impacted performance in DES 111 and/or DES 131, then a request to repeat can be reviewed if the student submits a petition to the Director of Foundations Year Program by the last day of classes of the spring semester of the academic year when the course was attempted. The decision to approve a repeat of DES 111 and/or DES 131 will be based on an evaluation of the student's academic performance and an assessment of the ability to successfully compete for advancement to the second year at the conclusion of the academic year within which DES 111 and/or DES 131 will be repeated.

DES 112 and DES 132 are not repeatable.

Department of Architecture

Jason Carlow, Head

Faculty

Zaki Aslan
Roberto Castillo
Camilo Cerro
Joseph Colistra
Marcus Farr
Samar Halloum
W. Eirik Heintz
Michael Hughes
Charles Jones
Ammar Kalo
George Katodrytis
Kevin Mitchell
Ahmed Mokhtar
John Montague
Maria Oliver
Igor Peraza Curiel
Varkki Pallathucheril
Patrick Rhodes
Juan Roldan
William Sarnecky
Rana Shakaa
Gregory Spaw
Faysal Tabbarah
Kenneth Tracy
Tania Ursomarzo

Bachelor of Architecture (BArch)

Architecture arises from the same wellspring of civilization as other universal manifestations of material culture: arts, histories, letters, religion and commerce. Still, the artifacts designated as architecture possess a scale, permanence and a pervasive influence unique among human endeavors. These qualities endow the discipline with a cultural prominence few other professions enjoy.

In its contemporary university setting, the study of architecture is naturally concerned with complex, interdisciplinary issues. Some matters are primarily individual and practical: the basic human need for shelter and the desire to contrive efficient, adequate forms for the patterns of daily life. Architecture, in this sense, may concern aspirations and meanings, but its primary intent is to attain a practical advantage here and now.

Architecture also has a transcendent motive, arising from an imperative to articulate, physically and spatially, the social, ceremonial and environmental choices a given culture makes within a given setting. Architecture expresses living values. It gives abiding form, order and proportion to activities. Architecture is a message to the world about certainties and doubts, values and beliefs, preoccupations and neglects. It both expresses and reveals.

The practice of architecture today, as in the past, requires coordinated contributions from multiple fields. The craft of the architect runs a gamut of expertise and awareness: technical, environmental, aesthetic, cultural, historical and commercial. Consequently, the study of architecture investigates principles and applications of technology, art, humanities, engineering, physical and social sciences, business and management. Architectural design, finally, is the synthetic practice that links and gives significant form to these interdisciplinary contributions.

Program Goals

The Bachelor of Architecture degree program aims to:

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

Program Outcomes

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

- explain design principles in relationship to the history and theory of architecture
- demonstrate an understanding of the standards of professional practice
- demonstrate an understanding of the conventions of building systems and technology
- employ traditional means of representation, computer-aided design, digital and physical modeling and fabrication to develop and communicate design
- articulate, present and discuss design proposals in verbal, written and graphic form
- employ research, analysis and iterative processes to inform and enrich the process of design
- employ research, analysis and problem-solving skills to address unique and fluctuating conditions of design
- integrate materials, construction methodologies, site conditions and environmental control systems into a comprehensive building design proposal
- analyze and explain the relationship between design and environmental sustainability
- demonstrate the ability to independently develop design proposals that respond to context
- work in teams to conduct research on design-related issues and present results in verbal, written and graphic form

Accreditation

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

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

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

BArch (159 undergraduate credit hours)

Curriculum

The BArch degree program (five-year professional program) is intended for students seeking a professional career in architecture. The program entails a minimum of five years of university studies plus professional training. A minimum of 159 credit hours comprises the degree program, including a minimum of 102 credit hours of required coursework in architecture and closely associated fields. These courses represent the irreducible core of the discipline of architecture.

The specialized professional curriculum is supported by a minimum of 39 credit hours of general education requirements. Designed to ensure a broad educational foundation, this base is held in common among all graduates of American University of Sharjah.

University studies present a unique opportunity to explore other fields of interest. Based solely on individual interests, each architecture student must select a minimum of 15 credit hours of free electives from general university offerings.

The curriculum is designed to meet the requirements for licensure that prevail in the United Arab Emirates and to prepare the graduate for professional practice throughout the region. Some students may aspire either to advanced study in the field or to practice in a broader global setting. Accordingly, the curriculum follows established international norms for a first professional degree in architecture.

Formal Admission to the Major

The number of seats in architecture is limited. Formal admission is competitive. Only the most highly qualified foundations year program students will be admitted. To be considered for formal admission to the architecture major a student must successfully complete the following minimum requirements:

- all four foundations year program studio courses (DES 111, DES 112, DES 131, DES 132)
- a minimum grade point average (GPA) of 2.00 out of 4.00 in in DES 111 and DES 112
- a minimum grade point average (GPA) of 2.00 out of 4.00 in DES 131 and DES 132
- DES 121 Introduction to Architecture, Art and Design History and DES 122 Modern Developments in Architecture, Art and Design
- MTH 111 Mathematics for Architects or its prerequisite (MTH 003), or MTH 103 Calculus I
- at least one course in writing (WRI) at the 100 level or above

- a minimum of 27 undergraduate credit hours (credit hours earned including the above courses)
- a CGPA of 2.30

In addition, selection for formal admission may include portfolio review.

Formal notification of admission will be announced by the College of Architecture, Art and Design by the first week of the summer term after the release of the final grades by the Office of the Registrar at the end of the spring semester.

In the event that there are more students who qualify for formal admission than available seats, candidates will be admitted based on academic achievement, and a waiting list will be established. However, if there are fewer students who qualify for formal admission than available seats, consideration will be given to students who have applied for a change of major. If seats are still available at the time of fall registration, consideration will also be given to students who fulfilled requirements during summer term. The same formal admission criteria apply.

Only students formally admitted to the major are eligible for registration in the second-year studio course.

Note: A student who is formally admitted to the second year and wants to repeat the ARC 201 studio must compete for the limited number of seats in second-year studio courses based on the criteria for formal admission to the major

Degree Requirements

To qualify for graduation with a BArch degree, students must successfully complete the following minimum requirements:

- a minimum of 159 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 39 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 102 credit hours of major requirements
  - a minimum of 15 credit hours of free electives
  - five weeks of an approved internship
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

Please see the proposed sequence of study for information on completing the requirements in five years.

General Education Requirements (minimum of 39 credit hours)

Students in the BArch degree program must successfully complete the following general education requirements:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: a minimum of six credit hours in courses meeting this requirement, including PHY 104
- mathematics requirement: MTH 103 or MTH 111
- statistics requirement: a minimum of three credit hours in courses meeting this requirement
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses and/or 200-level or above English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through ARC 463
- discipline-specific writing intensive course requirement: satisfied through ARC 421
- oral proficiency requirement: satisfied through ARC 401
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through ARC 201

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

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (102 credit hours)

In addition to the foundations year program courses, the following courses constitute the major requirements for the BArch degree program:

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

Repeating Studio Courses

A student who fails an architecture studio twice is dismissed from the program.

Directed Architectural Design Studio (ARC 592)

Normally, registration in ARC 592 requires completion of ARC 591. However, approval may be granted to continue work initiated in ARC 501 as an independent project in ARC 592. A minimum cumulative GPA of 3.30 and a minimum GPA of 3.50 in the upper-level studio sequence (ARC 301, ARC 302, ARC 401 and ARC 402) is required to apply to register in ARC 592 following the completion of ARC 501.

Permission to register in ARC 592 will be evaluated by the department based on a written proposal and an evaluation of studio work completed in ARC 501 or research work completed in ARC 591. Students who have not completed ARC 591 must consult with the department

regarding proposal criteria and must submit all required material by the last day of exams during the semester in which they have completed ARC 501.

Internship

To qualify for graduation with a BArch degree, students must fulfill the internship requirement. The purpose of the internship is to expose students to the profession and give them an opportunity to apply their academic knowledge in a practical setting.

The internship consists of a minimum of 200 work hours for third-year or fourth-year students with an approved employer. Students' internships are ultimately evaluated by the internship coordinator with a Pass/Fail grade. Architecture students are highly encouraged to complete the internship program during the summer following their third year.

For details on internship eligibility and registration, please refer to Internship Registration under Registration and Course Information in the Academic Policies and Regulations section of this catalog.

Free Electives
(minimum of 15 credit hours)

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

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Directed Architectural Design Research (ARC 591)

Permission to register in ARC 591 will be evaluated by the department based on previous academic performance and a written proposal. Completion of all upper-level studios (ARC 301, ARC 302, ARC 401, and ARC 402) with a minimum GPA of 3.50 is required to apply to register in ARC 591. Students must consult with the department regarding proposal criteria and must submit all required material by the last day of exams during the semester in which they have completed ARC 402. ARC 591 will be counted as a free elective.

Proposed Sequence of Study
Bachelor of Architecture (BArch)

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

SECOND YEAR (36 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ARC 201	Architectural Design Studio I	6
	ARC 271	Introduction to Landscape	3
	ARC 281	Architectural Principles	3
	ENG 203 or ENG 204	Writing about Literature or Advanced Academic Writing	3
	PHY 104	Physics for Architects	3
		Total	**18**
Spring	ARC 202	Architectural Design Studio II	6
	ARC 222	Modern Architecture and Urban Form	3
	ARC 232	Materials and Methods I	3
	GER-COM	Communication	3
	FRE	Free Elective	3
		Total	**18**

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

FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ARC 401	Architectural Design Studio V	6
	ARC 421	Architectural Theory	3
	ARC 451	Environmental Control Systems	3
	GER-Core	Arts and Literature	3
		Total	**15**
Spring	ARC 402	Architectural Design Studio VI	6
	ARC 463	Professional Practice	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	GER-SCI	Natural Sciences	3
		Total	**15**

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

Bachelor of Interior Design (BID)

The profession of interior design lies between interior decoration and architecture. The interior designer must be competent to operate in both professions with an intimate knowledge of material selection, construction methods and furnishings as well as technical skills and construction expertise. Interior designers usually work as part of a design team, including architects, structural and mechanical engineers, and specialty consultants. They must possess a broad base of knowledge and skills.

Interior designers create and are responsible for all aspects of the interior environment: program, design, construction documents, supervision, lighting, and material and furniture selection. Like architects, they create interiors using space itself as a creative material, molded by architectural elements. They know intimately the materials of interior construction and finishing, decoration and lighting, and how to use these in innovative designs that support an overall spatial and formal idea.

Interior design services encompass research, development and implementation of plans and designs of interior environments. The objective is to improve the quality of life, increase productivity and protect the health, safety and welfare of the public. The professional interior designer must be able to see projects through from concept to physical completion.

Potential career options for students majoring in interior design include interior designer, space planner and programmer, adaptive reuse designer, facilities planner, project manager, design journalist, educator, researcher, sales representative, renderer, healthcare designer and office planner.

Program Goals

The Bachelor of Interior Design degree program aims to:

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

Program Outcomes

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

- explain design principles in relationship to the history and theory of interior design
- demonstrate an understanding of the standards of professional practice
- demonstrate an understanding of the conventions of existing building systems and their impact on interior construction and human factors
- employ traditional means of representation, computer-aided design, digital and physical modeling and fabrication to develop and communicate design
- articulate, present and discuss design proposals in verbal, written and graphic form
- employ research, analysis and iterative processes to inform and enrich the process of design
- employ research, analysis and problem-solving skills to address unique and fluctuating conditions of design
- integrate materials, components, assembling methodologies, furniture, furnishing, health and safety, and environmental control systems into a comprehensive interior design proposal
- analyze and explain the relationship between design, environmental sustainability and interior applications of products and systems
- demonstrate the ability to independently develop design proposals that respond to context
- work in teams to conduct research on design-related issues and present results in verbal, written and graphic form

Curriculum

The BID degree program at AUS emphasizes creativity and innovation in the art of interior design while giving students a strong background in technique and practical knowledge. The program core comprises six rigorous design studios following the common foundations year. Interior design studios encourage the development of analytical and reasoning skills, as well as the ability to conceptualize, develop and present designs. The interior design studios are supplemented by technical courses ranging from furniture design and materials and methods of interior construction to specific training in color and light.

The BID degree program is intended for students seeking a professional career in interior design. The program entails a minimum of four years of university studies plus an approved internship. A minimum of 129 credit hours comprises the degree program, including a minimum of 78 credit hours of required course work in interior design and closely associated fields. These courses represent the core of the interior design discipline.

The specialized professional curriculum is supported by a minimum of 39 credit hours of university requirements. Designed to ensure a broad educational foundation, this base is held in common among all graduates of American University of Sharjah.

University studies represent a unique opportunity to explore other areas of interest. Based solely on individual interests, each interior design student must select a minimum of nine additional credit hours of free electives from general university offerings.

The curriculum is designed to meet requirements for licensure that prevail in the United Arab Emirates and to prepare the graduate for professional practice throughout the region. Some students may aspire either to advanced study in the field or to practice in a broader global setting. Accordingly, the curriculum follows established international norms for a professional degree in interior design.

Formal Admission to the Major

The number of seats in interior design is limited. Formal admission is competitive. Only the most highly qualified foundations year program students will be admitted. To be considered for formal admission to the interior design major, a student must successfully complete the following minimum requirements:

- all four foundations year program studio courses (DES 111, DES 112, DES 131, DES 132)
- a minimum grade point average (GPA) of 2.00 out of 4.00 in DES 111 and DES 112
- a minimum grade point average (GPA) of 2.00 out of 4.00 in DES 131 and DES 132
- DES 121 Introduction to Architecture, Art and Design History and DES 122 Modern Developments in Architecture, Art and Design
- MTH 111 Mathematics for Architects or its prerequisite (MTH 003), or MTH 103 Calculus I
- at least one course in writing (WRI) at the 100 level or above
- a minimum of 27 undergraduate credit hours (credit hours earned including the above courses)
- a minimum CGPA of 2.30

In addition, selection for formal admission to the second year may include portfolio review.

Formal notification of admission will be announced by the College of Architecture, Art and Design by the first week of the summer term after the release of the final grades by the Office of the Registrar at the end of the spring semester.

In the event that there are more students who qualify for formal admission than available seats, candidates will be admitted based on academic achievement, and a waiting list will be established. However, if there are fewer students who qualify for formal admission than available seats, consideration will be given to students who have applied for a change of major. If seats are still available at the time of fall registration, consideration will also be given to students who fulfilled requirements during summer term. The same formal admission criteria apply.

Only students formally admitted to the major are eligible for registration in the second-year studio course.

Note: A student who is formally admitted to the second year and wants to repeat the IDE 201 studio must compete for the limited number of seats in second-year studio courses based on the criteria for formal admission to the major.

Degree Requirements

To qualify for graduation with a BID degree, students must successfully complete the following minimum requirements:

- a minimum of 129 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 39 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 78 credit hours of major requirements
  - a minimum of nine credit hours of free electives
  - five weeks of an approved internship
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

Please see the proposed sequence of study for information on completing the requirements in four years.

General Education Requirements (minimum of 39 credit hours)

Students in the BID degree program must successfully complete the following general education requirements:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: a minimum of six credit hours in courses meeting this requirement, including PHY 104
- mathematics requirement: MTH 103 or MTH 111
- statistics requirement: a minimum of three credit hours in courses meeting this requirement
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses and/or 200-level or above English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through IDE 463
- discipline-specific writing intensive course requirement: satisfied through IDE 225
- oral proficiency requirement: satisfied through IDE 401
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through IDE 201

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

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (78 credit hours)

In addition to the foundations year program courses, the following courses constitute the major requirements for the BID degree program:

- ARC 281 Architectural Principles
- IDE 201 Interior Design Studio I
- IDE 202 Interior Design Studio II
- IDE 225 History and Theory of Interior Design: Global and Regional Issues
- IDE 239 Interior Materials and Methods
- IDE 251 Color and Light
- IDE 301 Interior Design Studio III
- IDE 302 Interior Design Studio IV
- IDE 334 Furniture and Furnishings
- IDE 352 Environmental Control Systems in Interior Design
- IDE 397 Internship in Interior Design
- IDE 401 Interior Design Studio V
- IDE 402 Interior Design Studio
- IDE 434 Construction, Detailing and Structures
- IDE 463 Professional Practice

Repeating Studio Courses

A student who fails an interior design studio twice is dismissed from the program.

Internship

To qualify for graduation with a BID degree, students must fulfill the internship requirement. The purpose of the internship is to expose students to the profession and give them an opportunity to apply their academic knowledge in a practical experience.

The internship consists of a minimum of 200 work hours with an approved employer. Interior design students are highly encouraged to complete the internship program during the summer after completion of their third year of studies.

For details on internship eligibility and registration, please refer to Internship Registration under Registration and Course Information in the Academic Policies and Regulations section of this catalog.

Free Electives (minimum of 9 credit hours)

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

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Interior Design (BID)

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

SECOND YEAR (36 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	IDE 201	Interior Design Studio I	6
	IDE 251	Color and Light	3
	ARC 281	Architectural Principles	3
	ENG 203 or ENG 204	Writing about Literature or Advanced Academic Writing	3
	PHY 104	Physics for Architects	3
		Total	**18**
Spring	IDE 202	Interior Design Studio II	6
	IDE 225	History and Theory of Interior Design: Global and Regional Issues	3
	IDE 239	Interior Materials and Methods	3
	GER-COM	Communication	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**18**

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

FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	IDE 401	Interior Design Studio V	6
	IDE 434	Construction, Detailing and Structures	3
	GER-STA	Statistics	3
	FRE	Free Elective	3
		Total	**15**
Spring	IDE 402	Interior Design Studio VI	6
	IDE 463	Professional Practice	3
	GER-Core	Course Selected from General Education Core Requirements	3
	GER-SCI	Natural Sciences	3
		Total	**15**

Department of Art and Design

Zinka Bejtic, Head

Faculty

Hala Rabeea Al Ani
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Joseph Graham
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Mission Statement

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

Bachelor of Science in Design Management (BSDM)

The Bachelor of Science in Design Management (BSDM) provides students with a robust educational experience integrating design and management disciplines. Focused on innovation, graduates of this program gain expertise in facilitating design processes through user-centered research, project development, business management, and product, service and systems design for any environmental, social, cultural, governmental or corporate enterprise.

Design management is about facilitating rather than authoring design and change. However, to be in a position to provide such facilitation, design managers must be familiar enough with the skills and sensibilities necessary for authoring design. As such, students engage with the latest digital technologies, theories, and processes that prepare them to be compelling design thinkers. Business, management and communication courses prepare students to develop and manage a business, communicate effectively, successfully present ideas and pitch projects, and master systems and marketing skills. A foundation in design allows students to expand their industry-relevant understanding of design processes to approach future challenges in innovative ways. Those interested in gaining specific design skills do so through various elective courses in photography, design, illustration, animation or film.

Courses are designed to meet the needs of contemporary emerging markets and are being developed in consultations with industry partners. Through practical projects with real-life business cases, students are taken on a transformative journey to become adaptive, collaborative and creatively driven professionals who add value through non-conventional, creative business solutions.

Graduates of the program build careers in design practices, non-governmental organizations and the corporate sector. They contribute in a variety of ways, such as strategic communication specialist, campaign and event planner, account and project manager, market analyst, business development consultant, agency principal and administrator, and more.

Program Goals

The Bachelor of Science in Design Management program aims to:

- ground students in theories of business management, marketing and leadership required to engage in entrepreneurship
- provide students with design knowledge, skills and tools required to conceptualize, develop and implement creative strategies and projects
- prepare students to participate in innovation in all of its forms through data visualization, problem finding and design thinking skills
- enable students to critically analyze and address contemporary problems while responding professionally and ethically to various audiences and contexts

Program Outcomes

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

- apply theories of design, business management, marketing and communication
- strategize, conceptualize, design and manage projects using traditional and digital tools
- use human-centric approaches to effectively collaborate, communicate, lead and work within interdisciplinary teams and professional environments
- employ analytical, technical, communication and critical-thinking skills to thrive and succeed in the contemporary entrepreneurial world
- apply moral, ethical and professional standards as they engage with projects within regional or international markets

Formal Admission to the Major

The study of design management requires a good understanding of the fundamentals of design. Only students who successfully complete the non-repeatable studio courses DES 111, DES 112 and DES 132 are formally admitted to the design management major.

Degree Requirements

To qualify for graduation with a BSDM degree, students must successfully complete the following minimum requirements:

- a minimum of 120 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 39 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 60 credit hours of major requirements
  - a minimum of 12 credit hours of major electives
  - a minimum of six credit hours of free electives
  - five weeks (normally 200 hours) of an approved internship
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 39 credit hours)

Students in the BSDM degree program must successfully complete the following general education requirements:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: a minimum of six credit hours in courses meeting this requirement
- mathematics requirement: MTH 100 or a minimum of three credit hours in any MTH course at the 100 level or above meeting this requirement
- statistics requirement: STA 202 or QBA 201
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses and/or 200-level or above English (ENG) courses meeting this requirement, including ENG 203 or ENG 204, and ENG 225
- ethical understanding requirement: satisfied through DES 462
- discipline-specific writing intensive course requirement: satisfied through DES 231
- oral proficiency requirement: satisfied through DES 300
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through DES 230

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

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (60 credit hours)

The following courses constitute the major requirements for the BSDM degree program:

In the College of Architecture, Art and Design (42 credit hours)

- DES 111 Descriptive Drawing I
- DES 112 Descriptive Drawing II
- DES 121 Introduction to Architecture, Art and Design History or DES 122 Modern Developments in Architecture, Art and Design
- DES 131 Design Foundations I
- DES 132 Design Foundations II
- DES 230 Visual Communication Design
- DES 231 History of Design
- DES 275 Fundamentals of Design Management
- DES 300 User-Centered Design Project
- DES 360 Critical Discourse in Design
- DES 397 Internship in Design Management
- DES 462 Design Management
- DES 475 Service Design
- DES 480 Systems and Strategic Design Thinking
- GRD 361 The Design Profession

In the School of Business Administration (18 credit hours)

- BUS 100 Introduction to Business
- ECO 202 Principles of Macroeconomics
- MGT 201 Fundamentals of Management
- MGT 301 Organizational Behavior
- MKT 201 Fundamentals of Marketing
- MKT 301 Consumer Behavior

Internship

Internship is a requirement for graduation. Arrangements for the internships are normally made with the students in the spring semester of their third year.

The internship comprises five weeks of full-time work placement (normally 200 hours) at an approved professional company during the summer of the student's third year. A review of the student's internship journal and feedback

from the employer are the basis of passing the internship requirement.

For details on internship eligibility and registration, please refer to Internship Registration under Registration and Course Information in the Academic Policies and Regulations section of this catalog.

Major Electives
(minimum of 12 credit hours)

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

- PSY 101 General Psychology
- PSY 102 Social Psychology
- THE 321 Arts Management
- any course in CAAD, excluding ART courses
- any course in SBA
- any course in MDC

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives
(minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in free electives selected from courses offered at or above the 100 level, excluding MTH 100, MTH 103 and MTH 111.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

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

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

*Students must take either DES 121 or DES 122 to meet the major requirements.
**Students can take MTH 100 or any other 100-level or above MTH course meeting the GER-MTH requirement.

SECOND YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hour**
Fall	BUS 100	Introduction to Business	3
	DES 230	Visual Communication Design	3
	DES 231	History of Design	3
	ENG 203 or ENG 204	Writing about Literature or Advanced Academic Writing	3
	STA 202 or QBA 201	Introduction to Statistics for Social Sciences or Quantitative Business Analysis	3
		Total	**15**
Spring	DES 275	Fundamentals of Design Management	3
	MGT 201	Fundamentals of Management	3
	MKT 201	Fundamentals of Marketing	3
	GER-Core	Culture in a Critical Perspective	3
	GER-SCI	Natural Sciences	3
		Total	**15**

THIRD YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	DES 300	User-Centered Design Project	3
	ECO 202	Principles of Macroeconomics	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	MJE	Major Elective	3
	GER-Core	Arts and Literature	3
		Total	**15**
Spring	DES 360	Critical Discourse in Design	3
	MKT 301	Consumer Behavior	3
	GRD 361	The Design Profession	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Summer	DES 397	Internship in Design Management	0

FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	DES 462	Design Management	3
	DES 475	Service Design	3
	ENG 225	Writing for Business	3
	GER-SCI	Natural Sciences	3
	FRE	Free Elective	3
		Total	**15**
Spring	DES 480	Systems and Strategic Design Thinking	3
	MGT 301	Organizational Behavior	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**

Courses are offered as per the proposed sequence of study. Students who do not follow the recommended sequence of study might require more than four years to complete their degree program.

Bachelor of Science in Film and New Media Design (BSFMD)

The Bachelor of Science in Film and New Media Design (BSFMD) degree program prepares students for careers in designing integrated digital media content, which has become a staple of contemporary life and is the primary means through which information and entertainment are delivered to audiences. BSFMD students work with time-based media (film, video, animation) as well as interactive and immersive media applications (augmented/virtual reality, smart media).

BSFMD graduates combine technical skills and theoretical understanding of art, design and technology, as they prepare to become impactful professionals and creative problem-solvers ready to practice within traditional and emerging technological, social and cultural contexts. Graduates find careers in designing web and mobile apps, social media content, advertising graphics, animation, computer games and other new media applications. Integrated and interactive digital media content is used in libraries, museums, television, publishing houses, schools, retailers, films, games and training programs.

Program Goals

The Bachelor of Science in Film and New Media Design program aims to:

- provide students with historical antecedents, multidisciplinary perspectives, contemporary examples and discipline-based vocabulary required to engage in informed discussions and critical inquiry within the film and new media design field
- equip students with critical research and media literacy skills required for analyzing trends in media and solving design problems using appropriate communication formats to respond to the demands of audiences and cultural contexts
- introduce students to the skills required to develop innovative, creative and technically sophisticated projects across contemporary time-based media, dimensions and environments

Program Outcomes

Upon completion of the Bachelor of Science in Film and New Media Design program, graduates will be able to:

- use discipline-specific language, terminology and analytical skills to assess time-based and interactive media processes
- effectively produce narrative and other time-based media information/language structures
- effectively use technology as a vehicle for innovation and creative practice
- analyze and synthesize relevant audiences and their communication needs relevant to digital media design experiences
- evaluate media design theory and practices within cultural and historical contexts
- apply professional and ethical standards as they develop, manage and produce industry-quality creative work

Curriculum

The BSFMD degree program requires a minimum of four years of course work for a minimum of 126 credit hours, 69 credit hours of which are required in multimedia-related studies, including sound, video, text, computer graphics and theory courses. The specialization is supported by a minimum of 39 credit hours of general education requirements and a minimum of 15 credit hours of free electives. In addition, an approved internship is required of all students; firm/company placement normally occurs in the summer after completion of the third year.

The BSFMD is a professional degree program designed for those who seek careers in modern design and media practice or in preparation of graduate studies. The curriculum follows standards of professional North American practice and is conceived to meet or exceed the requirements of multimedia industries in the United Arab Emirates.

Formal Admission to the Major

The number of seats in film and new media design is limited. Formal admission is competitive. Only the most highly qualified foundations year program students will be admitted. To be considered for formal admission to the film and new media design major, a student must successfully complete the following minimum requirements.

- all four foundations studio courses (DES 111, DES 112, DES 131, DES 132)
- a minimum grade point average (GPA) of 2.00 out of 4.00 in DES 111 and DES 112
- a minimum grade point average (GPA) of 2.00 out of 4.00 in DES 131 and DES 132
- DES 121 Introduction to Architecture, Art and Design History or
  DES 122 Modern Developments in Architecture, Art and Design
- MTH 100 or any other MTH course
- at least one course in writing (WRI) at the 100 level or above
- a minimum of 27 undergraduate credit hours (credit hours earned including the above courses)
- a minimum CGPA of 2.30

In addition, selection for formal admission may include portfolio review.

Formal notification of admission will be announced by the College of Architecture, Art and Design by the first week of the summer term after the release of the final grades by the Office of the Registrar at the end of the spring semester.

In the event that there are more students who qualify for formal admission than available seats, candidates will be admitted based on overall academic achievement, and a waiting list will be established. However, if there are fewer students who qualify for formal admission than available seats, consideration will be given to students who have applied for a change of major. If seats are still available at the time of fall registration, consideration will also be given to students who fulfilled requirements during summer term. The same formal admission criteria apply.

Only students formally admitted to the major are eligible for registration in the second-year studio course.

Note: A student who is formally admitted to the second year and wants to repeat the FMD 201 studio must compete for the limited number of seats in second-year studio courses based on the criteria for formal admission to the major.

Degree Requirements

To qualify for graduation with a BSFMD degree, students must successfully complete the following minimum requirements:

- a minimum of 126 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 39 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 69 credit hours of major requirements
  - a minimum of 15 credit hours of free electives
  - five weeks of an approved internship
- a minimum studio average of 2.30 in the final studio sequence (FMD 404 and FMD 406)
- a minimum CGPA of 2.00

Note: A student who does not attain the required studio average of 2.30 in the final studio sequence must repeat the studio with the lower grade.

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation

Requirements in the Academic Policies and Regulations section earlier in this catalog.

Please see the proposed sequence of study for information on completing the requirements in four years.

General Education Requirements (minimum of 39 credit hours)

Students in the BSFMD degree program must successfully complete the following general education requirements:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: a minimum of six credit hours in courses meeting this requirement
- mathematics requirement: MTH 100 or a minimum of three credit hours in any MTH course at the 100 level or above meeting this requirement
- statistics requirement: a minimum of three credit hours in courses meeting this requirement
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses and/or 200-level or above English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through GRD 361
- discipline-specific writing intensive course requirement: satisfied through DES 231
- oral proficiency requirement: satisfied through FMD 404
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through FMD 201

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

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (69 credit hours)

In addition to the foundations year program courses, the following courses constitute the major requirements for the BSFMD degree program:

- DES 231 History of Design
- DES 232 Research Methodologies for Design
- FMD 201 Film and New Media Design Studio I
- FMD 202 Film and New Media Design Studio II
- FMD 221 Motion Graphics and Video
- FMD 301 Film and New Media Design Studio III
- FMD 302 Film and New Media Design Studio IV
- FMD 304 Media Systems and Publishing
- FMD 331 3D Animation
- FMD 360 Film and New Media Design History and Theory
- FMD 397 Internship in Film and New Media Design
- FMD 404 Film and New Media Design Studio V
- FMD 406 Film and New Media Design Studio VI
- FMD 450 Advanced Techniques in Film and New Media Design
- GRD 221 Photography Basics
- GRD 231 Typography I: Normative Typographic Principles
- GRD 361 The Design Profession'

Repeating Studio Courses

A student who fails a film and new media design studio twice is dismissed from the program.

Internship

Internship is a requirement for graduation. Arrangements for the internships are normally made with the students in the spring semester of their third year.

The internship comprises five weeks of full-time work placement (normally 200 hours) at an approved professional company during the summer of the student's third year. A review of the student's internship journal and feedback from the employer are the basis of passing the internship requirement.

For details on internship eligibility and registration, please refer to Internship Registration under Registration and Course Information in the Academic Policies and Regulations section of this catalog.

Free Electives (minimum of 15 credit hours)

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

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Science in Film and New Media Design (BSFMD)

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

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

SECOND YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	FMD 201	Film and New Media Design Studio I	3
	GRD 221	Photography Basics	3
	GRD 231	Typography I: Normative Typographic Principles	3
	DES 231	History of Design	3
	ENG 203 or ENG 204	Writing about Literature or Advanced Academic Writing	3
		Total	**15**
Spring	FMD 202	Film and New Media Design Studio II	3
	FMD 221	Motion Graphics and Video	3
	DES 232	Research Methodologies for Design	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (36 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	FMD 301	Film and New Media Design Studio III	3
	FMD 331	3D Animation	3
	FMD 360	Film and New Media Design History and Theory	3
	GRD 361	The Design Profession	3
	GER-Core	Culture in a Critical Perspective	3
	GER-STA	Statistics	3
		Total	**18**
Spring	IEN 301	Innovation and Entrepreneurship Mindset	3
	FMD 302	Film and New Media Design Studio IV	3
	FMD 304	Media Systems and Publishing	3
	GER-SCI	Natural Sciences	3
	GER-COM	Communication	3
	FRE	Free Elective	3
		Total	**18**
Summer	FMD 397	Internship in Film and New Media Design	0

FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	FMD 404	Film and New Media Design Studio V	3
	FMD 450	Advanced Techniques in Film and New Media Design	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	FMD 406	Film and New Media Design Studio VI	6
	GER-Core	Course Selected from General Education Core Requirements	3
	GER-SCI	Natural Sciences	3
	FRE	Free Elective	3
		Total	**15**

Bachelor of Science in Graphic Design (BSGRD)

The Bachelor of Science in Graphic Design (BSGRD) degree program prepares students to imaginatively integrate images and text so as to effectively communicate ideas and messages. Images dominate today's world, whether it be for information, entertainment or commerce. While the bulk of these is digital in nature, there is also a deep appreciation of well-designed and well-crafted printed artifacts.

The degree program provides a supportive, creative, and rigorous learning environment that has produced several generations of designers whose work continues to lead on a local, regional, and international level. Students leave the program equipped with a comprehensive command of design theory and practice, critical thinking, and contemporary technology that sets them apart in multicultural professional settings.

BSGRD graduates are equipped to enter, challenge and inspire the design profession. They find careers in graphic design, advertising, branding, exhibition design, illustration and photography. Typical job titles include, but are not limited to, graphic designer, web designer, creative manager, brand manager, art director and strategic communication designer.

Program Goals

The Bachelor of Science in Graphic Design degree program aims to:

- provide students with the practical and conceptual knowledge and skills necessary to successfully engage in visual design using various media, dimensions and formats
- prepare students to critically engage with traditional and emerging technologies and respond to a variety of audiences and contexts
- empower students to actively contribute to the design discourse locally, regionally and globally
- enable students to challenge the boundaries of the discipline and develop a broad palette of skills in analog and digital methods of making

Program Outcomes

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

- use visual and typographic language to communicate content to specific audiences
- negotiate between form, content and context using design research and historical and contemporary references
- deploy a range of tools, media and technology in the creation of design
- engage critically in design practice relevant to regional and global audiences, including the ethical considerations in creating, producing, and managing visual content
- present work professionally in verbal and written means using appropriate design language

- discuss, analyze and evaluate the technical, formal and conceptual aspects of graphic design
- analyze and describe contemporary and historical examples of graphic design
- explain how ideas are communicated and information is presented in the context of professional practice
- demonstrate a critical understanding of design practice within regional and global contexts

Curriculum

The BSGRD degree program requires a minimum of four years of university studies. The foundations year of graphic design consists of a basic education in applied design, training in computer applications and courses in the history, theory and relevance of design and visual expression. In the following years, elements of design practice are explored in individual, hands-on studio projects. The design studio sequence is the program core that integrates practical, cultural and contextual aspects of graphic design.

The BSGRD is a professional degree program. The minimum of 126 credit hours required for the degree comprises 69 credit hours in required graphic design, digital applications and visual design-related courses. This specialization is supported by a minimum of 39 credit hours of general education requirements and a minimum of 15 credit hours of free electives. In addition, an approved internship is required of all students; firm/company placement occurs in the summer after completion of the third year.

The BSGRD is configured to prepare those who seek careers as designers as well as those who plan to pursue graduate studies in graphic design-related areas. The curriculum follows standards of professional North American organizations and is designed to meet or exceed requirements for graphic design experts in the United Arab Emirates.

Formal Admission to the Major

The number of seats in the graphic design program is limited. Formal admission is competitive. Only the most highly qualified foundations year program students will be admitted. To be considered for formal admission to the graphic design major, a student must successfully complete the following minimum requirements.

- all four foundations studio courses (DES 111, DES 112, DES 131, DES 132)
- a minimum grade point average (GPA) of 2.00 out of 4.00 in DES 111 and DES 112
- a minimum grade point average (GPA) of 2.00 out of 4.00 in DES 131 and DES 132
- DES 121 Introduction to Architecture, Art and Design History or DES 122 Modern Developments in Architecture, Art and Design
- MTH 100 or any other MTH course
- at least one course in writing (WRI) at the 100 level or above
- a minimum of 27 undergraduate credit hours (credit hours earned including the above courses)
- a minimum CGPA of 2.30

In addition, selection for formal admission may include portfolio review.

Formal notification of admission will be announced by the College of Architecture, Art and Design by the first week of the summer term after the release of the final grades by the Office of the Registrar at the end of the spring semester.

In the event that there are more students who qualify for formal admission than available seats, candidates will be advanced based on academic achievement, and a waiting list will be established. However, if there are fewer students who qualify for formal admission than available seats, consideration will be given to students who have applied for a change of major. If seats are still available at the time of fall registration, consideration will be given to students who fulfilled requirements during summer term. The same formal admission criteria apply.

Only students formally admitted to the major are eligible for registration in the second-year studio course.

Note: A student who is formally admitted to the second year and wants to repeat the GRD 201 studio must compete for the limited number of seats in second-year studio courses based on the criteria for formal admission to the major.

Degree Requirements

To qualify for graduation with a BSGRD degree, students must successfully complete the following minimum requirements:

- a minimum of 126 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 39 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 69 credit hours of major requirements
  - a minimum of nine credit hours of major electives
  - a minimum of six credit hours of free electives
  - five weeks of an approved internship
- a minimum studio average of 2.30 in the final studio sequence (GRD 401 and GRD 406)
- a minimum CGPA of 2.00

Note: A student who does not attain the required studio average of 2.30 in the final studio sequence must repeat the studio with the lower grade.

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

Please see the proposed sequence of study for information on completing the requirements in four years.

General Education Requirements (minimum of 39 credit hours)

Students in the BSGRD degree program must successfully complete the following general education requirements:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: a minimum of six credit hours in courses meeting this requirement
- mathematics requirement: MTH 100 or a minimum of three credit hours in any MTH course at the 100 level or above meeting this requirement
- statistics requirement: a minimum of three credit hours in courses meeting this requirement
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses and/or 200-level or above English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through GRD 361
- discipline-specific writing intensive course requirement: satisfied through DES 231

- oral proficiency requirement: satisfied through GRD 401
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through GRD 201

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

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (69 credit hours)

In addition to the foundations year program courses, the following courses constitute the major requirements for the BSGRD degree program:

- DES 231 History of Design
- DES 232 Research Methodologies for Design
- DES 360 Critical Discourse in Design
- GRD 201 Graphic Design Studio I
- GRD 202 Graphic Design Studio II
- GRD 213 Illustration Drawing
- GRD 221 Photography Basics
- GRD 231 Typography I: Normative Typographic Principles
- GRD 301 Graphic Design Studio III
- GRD 302 Graphic Design Studio IV
- GRD 328 Arabic Type Design
- GRD 331 Typography II: Complex Typographic Systems
- GRD 342 Environment, Experience and Interaction Design
- GRD 361 The Design Profession
- GRD 397 Internship in Graphic Design
- GRD 401 Graphic Design Studio V
- GRD 406 Graphic Design Studio VI

Repeating Studio Courses

A student who fails a graphic design studio twice is dismissed from the program.

Internship

Internship is a requirement for graduation. Arrangements for the internships are normally made with the students in the spring semester of their third year.

The internship comprises five weeks of full-time work placement (normally 200 hours) at an approved professional company during the summer of the student's third year. A review of the student's internship journal and feedback from the employer are the basis of passing the internship requirement.

For details on internship eligibility and registration, please refer to Internship Registration under Registration and Course Information in the Academic Policies and Regulations section of this catalog.

Major Electives (minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in major electives from CAAD courses at the 300-level or above, with a minimum of six credit hours successfully completed in GRD courses at the 300 level or above.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement.

Free Electives (minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours from any courses at or above the 100 level.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Science in Graphic Design (BSGRD)

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

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

SECOND YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	GRD 201	Graphic Design Studio I	3
	GRD 213	Illustration Drawing	3
	GRD 231	Typography I: Normative Typographic Principles	3
	DES 231	History of Design	3
	ENG 203 or ENG 204	Writing about Literature or Advanced Academic Writing	3
		Total	**15**
Spring	GRD 202	Graphic Design Studio II	3
	GRD 221	Photography Basics	3
	GRD 331	Typography II: Complex Typographic Systems	3
	DES 232	Research Methodologies for Design	3
	GER-STA	Statistics	3
		Total	**15**

THIRD YEAR (36 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	GRD 301	Graphic Design Studio III	3
	GRD 328	Arabic Type Design	3
	GRD 361	The Design Profession	3
	DES 360	Critical Discourse in Design	3
	GER-Core	Culture in a Critical Perspective	3
	MJE	Major Elective	3
		Total	**18**
Spring	IEN 301	Innovation and Entrepreneurship Mindset	3
	GRD 302	Graphic Design Studio IV	3
	GRD 342	Environment, Experience and Interaction Design	3
	GER-COM	Communication	3
	MJE	Major Elective	3
	MJE	Major Elective	3
		Total	**18**
Summer	GRD 397	Internship in Graphic Design	0

FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	GRD 401	Graphic Design Studio V	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Arts and Literature	3
	GER-SCI	Natural Sciences	3
	FRE	Free Elective	3
		Total	**15**
Spring	GRD 406	Graphic Design Studio VI	6
	GER-Core	Course Selected from General Education Core Requirements	3
	GER-SCI	Natural Sciences	3
	FRE	Free Elective	3
		Total	**15**

Minor in Design Management

The Minor in Design Management offers a unique exploration of the synergy between design and business, equipping students with interdisciplinary skills to approach challenges in diverse domains. By integrating design and management perspectives, students gain an understanding of how design enhances business strategies and vice versa, preparing them for success in dynamic industries.

Students enrolling in the design management minor should have normally completed a minimum of 30 credit hours of course work and be in good academic standing.

Students seeking a minor in design management must successfully complete the following requirements:

- a minimum of 18 credit hours including:
  - nine credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of nine credit hours of the 18 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(9 credit hours)

Students must successfully complete nine credit hours as follows:

- DES 101 Design Foundations for Non-Majors or
  DES 131 Design Foundations I
- DES 275 Fundamentals of Design Management
- MGT 201 Fundamentals of Management

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete nine credit hours in courses at the 300 level or above, as follows:

- at least six credit hours in CAAD courses selected from the following courses:
  - DES 370 Introduction to Prototyping
  - DES 374 Package Design.
  - FLM 360 Screenwriting
  - any approved special topic CAAD courses at the 300-level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to view course classifications. ART courses do not meet this requirement.
- at least three credit hours in SBA courses selected from the following courses:
  - MGT 301 Organizational Behavior
  - MGT 313 Managing Innovation and Change
  - MGT 345 Management Consulting
  - MKT 302 Marketing Research
  - MKT 310 Marketing Communications
  - MKT 360 Digital Marketing

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from approved graduate-level courses, successfully completed while in the AMP, towards meeting the minor electives requirement. In meeting this requirement, the graduate-level courses must comply with the minor electives' distribution described above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in Film

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

Students seeking a minor in film must successfully complete the following requirements:

- a minimum of 18 credit hours including:
  - nine credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of nine credit hours of the 18 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(9 credit hours)

Students must successfully complete nine credit hours as follows:

- FLM 100 The Art of Film
- FLM 210 Narrative Structure in Film
- MDC 101 Digital Video Skills I

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours from the following list of courses:

- ENG 378 Literature as Film
- ENG 393 Shakespeare on Film
- FLM 310 Film Production
- FLM 332 Experimental Film and Video
- FLM 360 Screenwriting
- FLM 410 Advanced Film Production
- FMD 311 Animation
- MDC 302 Digital Video Skills II
- MDC 307 Film Criticism
- MDC 385 Women and Film
- any approved special topic courses at the 300-level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to view course classifications.

Minor in Illustration and Animation

Students enrolling in the illustration and animation minor should have normally completed a minimum of 30 credit hours of course work and be in good academic standing.

Students seeking a minor in illustration and animation must successfully complete the following requirements:

- a minimum of 18 credit hours including:
  - 12 credit hours of minor requirements
  - a minimum of six credit hours of minor electives
- a minimum of nine credit hours of the 18 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(12 credit hours)

Students must successfully complete 12 credit hours as follows:

- DES 111 Descriptive Drawing I or ART 111 Freehand Drawing
- FMD 311 Animation
- GRD 213 Illustration Drawing or ART 211 Intermediate Drawing
- GRD 313 Visual Narrative

Minor Electives
(minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours from the following list of courses, with a minimum of three credit hours from courses at the 300 level or above:

- DES 230 Visual Communication Design

- ENG 201 Creative Writing
- FLM 210 Narrative Structure in Film
- FLM 332 Experimental Film and Video
- FMD 331 3D Animation
- GRD 312 Illustration Genres
- any approved special topic courses at the 300-level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to view course classifications.

Minor in Product Design

Students enrolling in the product design minor should have normally completed a minimum of 30 credit hours of course work and be in good academic standing.

Students seeking a minor in product design must successfully complete the following requirements:

- a minimum of 18 credit hours including:
  - nine credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of nine credit hours of the 18 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(9 credit hours)

Students must successfully complete nine credit hours as follows:

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

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours from the following list of courses:

- DES 374 Package Design
- DES 462 Design Management
- IDE 335 Furniture Design Basics
- any approved special topic courses at the 300-level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to view course classifications.







College of Arts and Sciences

Dean
Mahmoud Anabtawi

Associate Dean for Undergraduate Affairs
Ahmad Al-Issa

Associate Dean for Graduate Affairs
Hana Sulieman

Associate Dean for Research and Innovation
John Klironomos

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

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

Degree Offerings

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

- Bachelor of Arts in English Language and Literature
- Bachelor of Arts in International Studies
- Bachelor of Arts in Media Communication
- Bachelor of Arts in Psychology
- Bachelor of Science in Biology
- Bachelor of Science in Chemistry and Biochemistry
- Bachelor of Science in Data Science
- Bachelor of Science in Environmental Sciences and Sustainability
- Bachelor of Science in Mathematics
- Bachelor of Science in Physics

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

Minor Offerings

The College of Arts and Sciences offers the following minors:

- actuarial mathematics
- applied and computational mathematics
- applied physics
- Arabic language and literature
- biology
- data science
- English/Arabic translation
- English language and literature
- environmental policy and sustainability
- environmental sciences
- history
- integrated marketing communications
- international studies
- journalism
- Middle Eastern studies
- music
- philosophy
- psychology
- sociology
- theatre
- women's studies

Computer Requirements

In order to make full use of the learning environment, in-class collaboration and work in groups on multidisciplinary projects, all entering undergraduate students must own a laptop or an Internet-capable device, meeting minimum specifications recommended by the university. These specifications are available on the IT FAQ site here: https://itfaq.aus.edu/faq/584. Students can email itservicedesk@aus.edu or call +971 6 515 2121 for any related questions. In addition, computer devices in specialized and technical labs are accessible to AUS students.

Department of Arabic and Translation Studies

Ahmed Ali, Head

Faculty
Wesam Al-Assadi
Mariam Al-Attar
Meis Al-Kaisi
Shuaib Ally
Nuha Al-Sha'ar
Said Faiq
Usman Ghani
Said Hassan
Sattar Izwaini
Boutheina Khaldi
Imed Nsiri
Gavin Picken
Lahouari Taleb
Mai Zaki

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

The department offers minors in Arabic language and literature and in English/Arabic translation, in addition to a Master of Arts in Translation (MATRA). For details on the master's degree program, please refer to the *AUS Graduate Catalog*.

Minor in Arabic Language and Literature

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

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

Students seeking a minor in Arabic language and literature must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - three credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor

successfully completed in residence at AUS

- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(3 credit hours)

Students must successfully complete one of the following two courses:

- ARA 101 Introduction to Arabic Heritage I
- ARA 102 Introduction to Arabic Heritage II

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of three credit hours in courses from the following list:

- ARA 101 Introduction to Arabic Heritage I (not used as a minor requirement)
- ARA 102 Introduction to Arabic Heritage II (not used as a minor requirement)
- ARA 103 Arabic Music in a Historical Context
- ARA 104 Introduction to Arabic Poetry
- ARA 105 Elementary Arabic I
- ARA 106 Elementary Arabic II
- ARA 181 The life of Muhammad (Seerah)
- ARA 201 Arabic Literature in Translation
- ARA 203 Intermediate Arabic I
- ARA 205 The Language of the Qur'an
- ARA 206 Modern Arabic Prose
- ARA 207 Arabic Drama
- ARA 240 Arab-Islamic Culture and Civilization
- ARA 250 Introduction to Arabic Digital Humanities
- ARA 280 Introduction to Hadith
- ARA 281 The Art of Qur'anic Recitation (Tajweed)
- ARA 282 Reason and Revelation in Arab-Islamic Thought
- ARA 285 Introduction to Islamic Law
- any approved ARA special topic courses. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Students must successfully complete a minimum of six credit hours in courses from the following list:

- ARA 301 Arabic Prose to the End of the Abbasid Era
- ARA 303 Classical Arab/Islamic Culture
- ARA 304 Modern Arabic Poetry
- ARA 306 Arabic Travel Writings
- ARA 307 Arabs and the "other"
- ARA 308 Arabic Grammar in Use
- ARA 320 The Andalusian Symbiosis
- ARA 340 The Social Context of Arabic
- ARA 380 Sufism: Readings in Islamic Mysticism
- ARA 385 Islamic Texts in Translation
- ARA 402 Qur'anic Studies
- any approved 300-level or above ARA special topic courses. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in English/Arabic Translation

To qualify for a minor in English/Arabic translation, students must demonstrate fluency in English and Arabic. In tandem with a solid grounding in communicative skills and linguistic analysis, the minor in translation focuses on written translation skills in a variety of settings and across disciplines. It also offers an insight into interpreting with a focus on the community. Throughout the program, students are provided with relevant theoretical input that establishes a framework for the study of translation and offers the tools to identify, analyze and resolve translation problems. This program of study will enable AUS students from any discipline to further enhance their employability chances and, more importantly, to be able to mediate in English between the world of their education and their community.

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

Students seeking a minor in English/Arabic translation must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - three credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(3 credit hours)

Students must successfully complete one of the following courses:

- TRA 210 Introduction to Translation
- TRA 220 Theoretical and Practical Issues in Translation
- TRA 230 Translating Arabic Literary Texts

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following list, with a minimum of six credit hours completed in courses at the 300 level or above:

- TRA 100 History and Principles of Arabic Translation
- TRA 210 Introduction to Translation (not used as a minor requirement)

- TRA 220 Theoretical and Practical Issues in Translation (not used as a minor requirement)
- TRA 230 Translating Arabic Literary Texts (not used as a minor requirement)
- TRA 301 Modern Media Translation
- TRA 307 Screen Translation
- One of the following courses:
  - ARA 308 Arabic Grammar in Use
  - ENG 321 Language and Culture
  - MDC 320 Intercultural Communication
- any approved TRA special topic courses. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from approved graduate-level courses, successfully completed while in the AMP, towards meeting the minor electives requirement. In meeting this requirement, the graduate-level courses must comply with the minor electives' distribution described above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Department of Biology, Chemistry and Environmental Sciences

Amin Majdalawieh, Head

Faculty

Mohamed Abouleish
Imad Abu-Yousef
Mohammed Al-Sayah
Aaron Bartholomew
Ivonne Bejarano
Rana Bilbeisi
Sarah Dalibalta
Oussama El-Kadri
Hosni Ghedira
Xin Hong
Almaz Jalilov
Sofian Kanan
Reem Khalil
John Klironomos
Sandra Knuteson
Amjad Mahasneh
Abdulrahim Sajini
Fatin Samara

The Department of Biology, Chemistry and Environmental Sciences oversees bachelor of science degrees in each of these three disciplines. The department enables graduates to pursue a variety of professions in science by providing them with rigorous training in the core areas with emphasis on hands-on experience. Whereas the biology and chemistry degree programs are similar to those in North American universities, the environmental sciences degree program is cognizant of the specific issues and challenges in the Gulf region.

The department maintains close relationship with alumni, local industries, environmental agencies and employers who provide internship and career opportunities to students.

Premedical Studies Preparation

AUS offers premedical studies (premed) courses that conform to the Medical College Admission Test (MCAT) requirements. For students seeking careers in medicine, the department offers MCAT advice on enhancing their medical school admission prospects. AUS has premed memoranda of understanding (MOUs) with American University of Beirut (AUB), Lebanese American University (LAU) and University of Balamand (UOB). AUS graduates in any discipline—including science, engineering, business, arts and the humanities—can now apply to the medical schools of these universities, provided they have completed specified premed science requirements. Successful applicants must also meet minimum admission criteria in terms of major GPA, cumulative GPA, and MCAT and interview scores. In recognition of the shared values and goals with AUS, these universities evaluate AUS applicants as graduates from a "sister" university.

Bachelor of Science in Biology (BSB)

The mission of the Bachelor of Science in Biology degree program is to provide students with a broadly based, rigorous education in a variety of biology areas. These include genetics, molecular biology, anatomy, physiology, neuroscience, sensory perception, microbiology, immunology, pharmacology, nutrition, health, human diseases, marine ecology, ecosystems management, species conservation, environmental protection, environmental biology and science education.

Program Goals

The Bachelor of Science in Biology program seeks to:

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

Program Outcomes

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

- gain practical, experience-based learning
- apply technologies and become proficient in the use of modern instrumentation
- identify and carry out thoughtful approaches to biology-related problems, including ethical issues and biological threats to the environment
- develop competence in critical thinking, communications, teamwork, information technology and adaptation to change
- produce written and oral reports using resources found in the scientific literature
- demonstrate knowledge of the fundamentals of various molecular, cell and ecological techniques, instruments and equipment

Career Opportunities

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

Admission to the Program

Admission to the degree program follows the university's undergraduate admission requirements.

AUS students transferring into the program must have achieved a minimum cumulative grade point average (CGPA) of 2.00. In the event that there are more qualified AUS students transferring into

the program than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college Associate Dean for Undergraduate Affairs. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

To qualify for graduation with a Bachelor of Science in Biology, students must successfully complete the following minimum requirements:

- a minimum of 120 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 41 credit hours in general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 49 credit hours of major requirements
  - a minimum of 15 credit hours of major electives
  - a minimum of 12 credit hours of free electives
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 41 credit hours)

Students must successfully complete a minimum of 41 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: BIO 101, BIO 101L, CHM 101 and CHM 101L
- mathematics requirement: MTH 103
- statistics requirement: STA 201
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through BIO 251
- discipline-specific writing intensive course requirement: satisfied through BIO 361
- oral proficiency requirement: satisfied through BIO 251
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through STA 201

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (49 credit hours)

- BIO 102 General Biology II
- BIO 102L General Biology Laboratory II
- BIO 210 Introduction to Human Anatomy and Physiology
- BIO 251 Ecology
- BIO 260 Genetics and Molecular Biology
- BIO 310 General Physiology
- BIO 332 Cell Biology
- BIO 335 Microbiology
- BIO 361 Evolution and Biodiversity
- BIO 490 Research Methods and Practices in Biology
- CHM 102 General Chemistry II
- CHM 102L General Chemistry Laboratory II
- CHM 215 Organic Chemistry I
- CHM 216 Organic Chemistry II
- CHM 217 Organic Chemistry Laboratory I
- CHM 350 Biochemistry
- PHY 101 General Physics I
- PHY 101L General Physics Laboratory I

Major Electives (minimum of 15 credit hours)

Students must successfully complete a minimum of 15 credit hours as follows:

Biology Elective Courses (minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following list:

- BIO 330 Ecosystems Management
- BIO 341 Principles of Pharmacology
- BIO 347 Human Nutrition
- BIO 351 Conservation Biology
- BIO 355 Medical Parasitology
- BIO 371 Principles of Neuroscience
- BIO 372 Sensory Perception
- BIO 394/494 special topic courses in biology
- BIO 421 Marine Environments
- BIO 435 Applied and Environmental Microbiology
- BIO 481 Cellular and Molecular Immunology
- BIO 491 Senior Research Project I
- BIO 492 Senior Research Project II

Biology-Related Elective Courses

Students can choose to complete a maximum of six credit hours in courses selected from the following list:

- CHM 242 Quantitative Analysis
- CHM 243 Quantitative Analysis Laboratory
- CHM 315 Organic Chemistry III
- CHM 334 Biochemistry Laboratory
- CHM 345 Instrumental Analysis
- CHM 362 Inorganic Biochemistry
- CHM 368 Molecular Biochemistry
- CHM 382 Forensic Chemistry
- CHM 394/494 approved special topic courses in chemistry. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- CHM 415 Spectroscopy in Organic Chemistry
- CHM 420 Nucleic Acids Biochemistry
- CHM 430 Physical Biochemistry
- CHM 436 Enzyme Kinetics and Biochemistry
- ENV 201 Fundamentals of Environmental Sciences and Sustainability
- ENV 280 Environmental Health and Policy
- ENV 352 Environmental Toxicology and Risk
- ENV 356 Climate Change
- ENV 365 Environmental and Sustainability Management Systems
- ENV 394/494 approved special topic courses in environmental sciences. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- ENV 451 Sustainable Waste Management

AMP students may use approved graduate-level courses, successfully

completed while in the AMP, towards meeting the major electives requirement. In meeting this requirement, the graduate-level courses must comply with the major electives' distribution described above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives (minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours of free electives selected from courses at the 100 level or above.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

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

FIRST YEAR (28 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	BIO 101	General Biology I	3
	BIO 101L	General Biology Laboratory I	1
	CHM 101	General Chemistry I	3
	CHM 101L	General Chemistry Laboratory I	1
	MTH 103	Calculus I	3
	WRI 101	Academic Writing I	3
		Total	**14**
Spring	BIO 102	General Biology II	3
	BIO 102L	General Biology Laboratory II	1
	CHM 102	General Chemistry II	3
	CHM 102L	General Chemistry Laboratory II	1
	WRI 102	Academic Writing II	3
	GER-Core	History and Culture of the Arab World	3
		Total	**14**
SECOND YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	BIO 260	Genetics and Molecular Biology	4
	CHM 215	Organic Chemistry I	3
	ENG 203 or ENG 204	Writing about Literature or Advanced Academic Writing	3
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
		Total	**14**
Spring	BIO 210	Introduction to Human Anatomy and Physiology	3
	BIO 251	Ecology	3
	CHM 216	Organic Chemistry II	3
	CHM 217	Organic Chemistry Laboratory I	1
	STA 201	Introduction to Statistics for Engineering and Natural Sciences	3
	GER-COM	Communication	3
		Total	**16**

THIRD YEAR (31 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	BIO 335	Microbiology	4
	MJE	Major Elective	3
	GER-Core	Arts and Literature	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**16**
Spring	BIO 332	Cell Biology	3
	CHM 350	Biochemistry	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
FOURTH YEAR (31 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	BIO 310	General Physiology	4
	BIO 361	Evolution and Biodiversity	3
	BIO 490	Research Methods and Practices in Biology	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**16**
Spring	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Bachelor of Science in Chemistry and Biochemistry (BSCB)

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

Program Goals

The Bachelor of Science in Chemistry and Biochemistry program seeks to:

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

Program Outcomes

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

- gain practical, experience-based learning

- apply technologies and use advanced chemical instrumentation such as nuclear magnetic resonance (NMR), high pressure liquid chromatography (HPLC), inductively coupled plasma spectrometry (ICP) and Fourier-transform infrared spectrometry (FTIR)
- identify and carry out thoughtful approaches to chemistry- and biochemistry-related problems, including ethical issues and the proper disposal of chemical waste
- develop competence in critical thinking, communications, teamwork, information technology and adaptation to change
- produce written and oral reports using resources found in the scientific literature

Career Opportunities

Chemists and biochemists have the ability to work in a wide range of industries such as the following: agricultural companies, chemical distributors, chemical laboratories, chemical manufacturing plants, chemistry consulting firms, cosmetic companies, food and beverage companies, government, health protection branches, hospital research laboratories, industrial laboratories, mineral and metal industries, oil companies, petroleum refineries, pharmaceutical/biotechnology industries, police laboratories, pulp and paper industries, quality control laboratories, research centers/institutes, textile manufacturers and waterworks departments.

Admission to the Program

Admission to the degree program follows the university's undergraduate admission requirements.

AUS students transferring into the program must have achieved a minimum cumulative grade point average (CGPA) of 2.00. In the event that there are more qualified AUS students transferring into the program than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college Associate Dean for Undergraduate Affairs. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

To qualify for graduation with a Bachelor of Science in Chemistry and Biochemistry, students must successfully complete the following minimum requirements:

- a minimum of 122 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 41 credit hours in general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 54 credit hours of major requirements
  - a minimum of 12 credit hours of major electives
  - a minimum of 12 credit hours of free electives
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting major electives and/or the free electives requirement. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 41 credit hours)

Students must successfully complete a minimum of 41 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: CHM 101, CHM 101L, PHY 101 and PHY 101L
- mathematics requirement: MTH 103
- statistics requirement: STA 201
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through CHM 490
- discipline-specific writing intensive course requirement: satisfied through CHM 490
- oral proficiency requirement: satisfied through CHM 490
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through STA 201

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (54 credit hours)

- BIO 101 General Biology I
- BIO 101L General Biology Laboratory I
- CHM 102 General Chemistry II
- CHM 102L General Chemistry Laboratory II
- CHM 215 Organic Chemistry I
- CHM 216 Organic Chemistry II
- CHM 217 Organic Chemistry Laboratory I
- CHM 218 Organic Chemistry Laboratory II
- CHM 242 Quantitative Analysis
- CHM 243 Quantitative Analysis Laboratory
- CHM 325 Inorganic Chemistry
- CHM 326 Inorganic Chemistry Laboratory
- CHM 330 Physical Chemistry I
- CHM 331 Physical Chemistry II
- CHM 333 Physical Chemistry Laboratory
- CHM 334 Biochemistry Laboratory
- CHM 345 Instrumental Analysis
- CHM 350 Biochemistry
- CHM 368 Molecular Biochemistry
- CHM 430 Physical Biochemistry
- CHM 490 Research Methods and Practices in Chemistry and Biochemistry
- MTH 104 Calculus II
- PHY 102 General Physics II
- PHY 102L General Physics Laboratory II

Major Electives (minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours as follows:

Chemistry and Chemistry-Related Elective Courses (minimum of 3 credit hours)

Students must successfully complete a minimum of three credit hours in courses selected from the following list:

- CHE 467 Corrosion
- CHE 473 Fundamentals of Carbon Capture and Storage Technology
- CHM 315 Organic Chemistry III
- CHM 382 Forensic Chemistry
- CHM 394/494 approved special topic courses in chemistry. Consult the online course catalog or the online class

schedule accessible via the AUS student information system to verify course classifications.

- CHM 415 Spectroscopy in Organic Chemistry
- CHM 491 Senior Research Project
- ENV 252 Environmental Chemistry and Analysis

Biochemistry and Biochemistry-Related Elective Courses (minimum of 3 credit hours)

Students must successfully complete a minimum of three credit hours in courses selected from the following list:

- BIO 394/494 approved special topic courses in biology. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- CHM 362 Inorganic Biochemistry
- CHM 394/494 approved special topic courses in chemistry. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- CHM 420 Nucleic Acids Biochemistry
- CHM 436 Enzyme Kinetics and Biochemistry

Biology and Biology-Related Elective Courses (minimum of 3 credit hours)

Students must successfully complete a minimum of three credit hours in courses selected from the following list:

- BIO 260 Genetics and Molecular Biology
- BIO 332 Cell Biology
- BIO 335 Microbiology
- BIO 394/494 approved special topic courses in biology. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. In meeting this requirement, the graduate-level courses must comply with the major electives' distribution described above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives (minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours of free electives selected from courses at the 100 level or above.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Science in Chemistry and Biochemistry (BSCB)

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

SECOND YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	BIO 101	General Biology I	3
	BIO 101L	General Biology Laboratory I	1
	CHM 215	Organic Chemistry I	3
	CHM 242	Quantitative Analysis	3
	CHM 243	Quantitative Analysis Laboratory	1
	GER-COM	Communication	3
		Total	**14**
Spring	CHM 216	Organic Chemistry II	3
	CHM 217	Organic Chemistry Laboratory I	1
	CHM 345	Instrumental Analysis	3
	STA 201	Introduction to Statistics for Engineering and Natural Sciences	3
	GER-COM	Communication	3
	GER-Core	History and Culture of the Arab World	3
		Total	**16**

THIRD YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHM 218	Organic Chemistry Laboratory II	1
	CHM 325	Inorganic Chemistry	3
	CHM 326	Inorganic Chemistry Laboratory	1
	CHM 330	Physical Chemistry I	3
	MJE	Major Elective	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
		Total	**17**
Spring	CHM 331	Physical Chemistry II	3
	CHM 333	Physical Chemistry Laboratory	1
	CHM 350	Biochemistry	3
	MJE	Major Elective	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**16**

FOURTH YEAR (31 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHM 334	Biochemistry Laboratory	1
	CHM 368	Molecular Biochemistry	3
	CHM 490	Research Methods and Practices in Chemistry and Biochemistry	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
		Total	**16**
Spring	CHM 430	Physical Biochemistry	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**

Bachelor of Science in Environmental Sciences and Sustainability (BSESS)

The mission of the Bachelor of Science in Environmental Sciences and Sustainability degree program is to provide graduates with qualifications for meaningful employment in the ever-expanding environmental and sustainability field. This multidisciplinary degree program will enable students to understand environmental issues and devise solutions towards a sustainable society and environment.

Program Goals

The Bachelor of Science in Environmental Sciences and Sustainability program seeks to:

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

Program Outcomes

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

- gain practical, experience-based learning
- critically evaluate and analyze scientific journal articles in the area of environmental sciences and sustainability and relate information to current environmental issues
- utilize standard laboratory and field methods to understand environmental issues related to air, water and food contaminants, and climate change; and apply proficiency in the use of different equipment used in environmental analysis, including gas chromatography (GC), high pressure liquid chromatography (HPLC), ion chromatography (IC) and inductively coupled plasma spectrometry (ICP)
- evaluate and discuss sources of local and regional environmental threats and perform impact assessment and find solutions that contribute to achieving a sustainable environment
- demonstrate knowledge of the fundamentals of environmental modeling, environmental monitoring techniques and risk assessment
- identify and apply approaches to environmental problems, including the treatment and disposal of wastewater and solid waste, water security, and issues related to environmental health and policy, food security and climate change
- evaluate the ethical, social, civic, cultural and political dimensions as they relate to environmental issues and achieving environmental sustainability
- evaluate and discuss sources of local, regional and global threats to biodiversity, ecosystem services and management
- produce written and oral reports using resources found in the scientific literature

Career Opportunities

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

Environmental and sustainability scientists can work in five general areas:

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

Employers of environmental sciences and sustainability scientists include government, the natural resources sector, utilities, manufacturers, consulting firms, laboratories and industry, as well as small business and innovative entrepreneurs. Governments at all levels need environmental sciences and sustainability scientists in the areas of enforcing regulations, writing public information, writing and researching regulations, and ensuring government departmental compliance with existing regulations. The natural resource/utility sector (i.e., oil, mining, forestry, agriculture and hydro) is interested in having environmental scientists work within the health, safety and environment sector or 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 sciences and sustainability 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, relies on environmental and sustainability scientists to accurately describe environmental risk and perform due diligence audits to assess potential liability. Businesses have been formed that service all these sectors in such areas as environmental sustainability, environmental impact assessment consulting, regulatory compliance and waste management.

With increasing environmental and sustainability governance a part of UAE Vision 2031, there is a growing demand in

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

Admission to the Program

Admission to the degree program follows the university's undergraduate admission requirements.

AUS students transferring into the program must have achieved a minimum cumulative grade point average (CGPA) of 2.00. In the event that there are more qualified AUS students transferring into the program than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college Associate Dean for Undergraduate Affairs. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

To qualify for graduation with a Bachelor of Science in Environmental Sciences and Sustainability, students must successfully complete the following minimum requirements:

- a minimum of 120 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 41 credit hours in general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 55 credit hours of major requirements
  - nine credit hours of major electives
  - a minimum of 12 credit hours of free electives in courses at the 100 level or above
  - a minimum of five weeks or 200 hours of a full-time, satisfactory internship in environmental sciences and sustainability with an environment and sustainability organization
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 41 credit hours)

Students must successfully complete a minimum of 41 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: CHM 101, CHM 101L, CHM 102 and CHM 102L
- mathematics requirement: MTH 103
- statistics requirement: STA 201
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses and/or in 200-level and above English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through ENV 490
- discipline-specific writing intensive course requirement: satisfied through ENV 490
- oral proficiency requirement: satisfied through ENV 490
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through STA 201

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (55 credit hours)

Students must successfully complete the following courses:

- BIO 101 General Biology I
- BIO 101L General Biology Laboratory I
- BIO 102 General Biology II
- BIO 102L General Biology Laboratory II
- BIO 251 Ecology
- CHM 215 Organic Chemistry I
- CHM 217 Organic Chemistry Laboratory I
- CHM 242 Quantitative Analysis
- CHM 243 Quantitative Analysis Laboratory
- ENV 150 Introduction to Environmental Sustainability
- ENV 201 Fundamentals of Environmental Sciences and Sustainability
- ENV 252 Environmental Chemistry and Analysis
- ENV 253 Environmental Chemistry and Analysis Laboratory
- ENV 280 Environmental Health and Policy
- ENV 352 Environmental Toxicology and Risk
- ENV 356 Climate Change
- ENV 365 Environmental and Sustainability Management Systems
- ENV 451 Sustainable Waste Management
- ENV 465 Environmental Impact Assessment and Monitoring
- ENV 490 Research Methods and Practices in Environmental Sciences and Sustainability
- ENV 497 Internship in Environmental Sciences and Sustainability
- PHY 101 General Physics I
- PHY 101L General Physics Laboratory I

Major Electives (minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in major electives selected from two categories of electives, as per the following details:

- Students must successfully complete a minimum of six credit hours in courses selected from the following list:
  - BIO 330 Ecosystems Management
  - BIO 335 Microbiology
  - BIO 351 Conservation Biology
  - BIO 361 Evolution and Biodiversity
  - BIO 421 Marine Environments
  - BIO 435 Applied and Environmental Microbiology
  - CHE 461 Air Pollution
  - CHE 472 Water and Wastewater Treatment Design
  - CHM 345 Instrumental Analysis
  - CHM 350 Biochemistry
  - CHM 382 Forensic Chemistry

- CVE 341 Water Resources Engineering
- CVE 451 Urban Water Infrastructure Management
- CVE 452 Water Distribution and Wastewater Collection Systems
- CVE 472 Geographic Information Systems
- DES 374 Package Design
- ENV 311 Environmental Modeling
- ENV 491 Senior Research Project
- EWE 331 Introduction to Environmental and Water Engineering
- EWE 333 Water Quality and Treatment
- PHY 301 Energy Sources
- UPL 302 Analysis of Spatial Phenomena

- Students must successfully complete a maximum of three credit hours in courses selected from the following list:
  - ECO 404 Economics of Environmental and Natural Resources
  - MGT 317 Management for Sustainability
  - PHI 309 Ethics and the Environment
  - SOC 302 Environmental Sociology
  - SOC 380 Urban Sociology

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. In meeting this requirement, the graduate-level courses must comply with the major electives' distribution described above.

Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives
(minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours of free electives selected from courses at the 100 level or above.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Science in Environmental Sciences and Sustainability (BSESS)

FIRST YEAR (28 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	BIO 101	General Biology I	3
	BIO 101L	General Biology Laboratory I	1
	CHM 101	General Chemistry I	3
	CHM 101L	General Chemistry Laboratory I	1
	MTH 103	Calculus I	3
	GER-COM	Communication	3
		Total	**14**
Spring	BIO 102	General Biology II	3
	BIO 102L	General Biology Laboratory II	1
	CHM 102	General Chemistry II	3
	CHM 102L	General Chemistry Laboratory II	1
	ENV 150	Introduction to Environmental Sustainability	3
	GER-COM	Communication	3
		Total	**14**
SECOND YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHM 215	Organic Chemistry I	3
	CHM 242	Quantitative Analysis	3
	CHM 243	Quantitative Analysis Laboratory	1
	ENV 201	Fundamentals of Environmental Sciences and Sustainability	3
	STA 201	Introduction to Statistics for Engineering and Natural Sciences	3
	GER-COM	Communication	3
		Total	**16**
Spring	BIO 251	Ecology	3
	CHM 217	Organic Chemistry Laboratory I	1
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	ENV 280	Environmental Health and Policy	3
	GER-COM	Communication	3
		Total	**14**

THIRD YEAR (31 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENV 252	Environmental Chemistry and Analysis	3
	ENV 253	Environmental Chemistry and Analysis Laboratory	1
	ENV 352	Environmental Toxicology and Risk	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**16**
Spring	ENV 356	Climate Change	3
	ENV 365	Environmental and Sustainability Management Systems	3
	MJE	Major Elective	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**15**
Summer	ENV 497	Internship in Environmental Sciences and Sustainability	0
FOURTH YEAR (31 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENV 465	Environmental Impact Assessment and Monitoring	4
	ENV 490	Research Methods and Practices in Environmental Sciences and Sustainability	3
	GER-Core	History and Culture of the Arab World	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**16**
Spring	ENV 451	Sustainable Waste Management	3
	MJE	Major Elective	3
	GER-Core	Arts and Literature	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**

Minor in Biology

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

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

Students seeking a minor in biology must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - a minimum of three credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(minimum of 3 credit hours)

Students must successfully complete one of the following options:

- BIO 102 General Biology II and BIO 102L General Biology Laboratory II
- BIO 210 Introduction to Human Anatomy and Physiology

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following list:

- BIO 310 General Physiology
- BIO 330 Ecosystems Management
- BIO 332 Cell Biology
- BIO 335 Microbiology
- BIO 341 Principles of Pharmacology
- BIO 347 Human Nutrition
- BIO 351 Conservation Biology
- BIO 355 Medical Parasitology
- BIO 361 Evolution and Biodiversity
- BIO 371 Principles of Neuroscience
- BIO 372 Sensory Perception
- BIO 394/494 special topic courses in biology
- BIO 421 Marine Environments
- BIO 435 Applied and Environmental Microbiology
- BIO 481 Cellular and Molecular Immunology
- BIO 490 Research Methods and Practices in Biology
- CHM 350 Biochemistry
- CHM 362 Inorganic Biochemistry
- CHM 368 Molecular Biochemistry
- CHM 420 Nucleic Acids Biochemistry
- CHM 430 Physical Biochemistry
- CHM 436 Enzyme Kinetics and Biochemistry

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from approved graduate-level courses, successfully completed while in the AMP, towards meeting the minor electives requirement. In meeting this requirement, the graduate-level courses must comply with the minor electives' distribution described above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in Environmental Policy and Sustainability

This interdisciplinary minor draws on the resources and expertise of several departments to focus students learning on the environmental linkages between social and environmental aspects of sustainability for an enhanced policy.

Students enrolling in the environmental policy and sustainability minor should have normally completed a minimum of 30 credit hours of course work and be in good academic standing.

Students seeking a minor in environmental policy and sustainability must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - six credit hours of minor requirements
  - a minimum of six credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

This minor is not open to students majoring in environmental sciences and sustainability.

Minor Requirements
(6 credit hours)

Students must successfully complete the following courses:

- ENV 150 Introduction to Environmental Sustainability or ENV 201 Fundamentals of Environmental Sciences and Sustainability
- ENV 365 Environmental and Sustainability Management Systems

Minor Electives
(minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses selected from the following list:

- BIO 330 Ecosystems Management
- BIO 351 Conservation Biology
- ECO 404 Economics of Environmental and Natural Resources
- ENV 280 Environmental Health and Policy
- ENV 311 Environmental Modeling
- ENV 352 Environmental Toxicology and Risk
- ENV 356 Climate Change
- ENV 394/494 special topic courses in environmental sciences
- MGT 317 Management for Sustainability
- PHI 309 Ethics and the Environment
- POL 304 International Organizations
- POL 305 Public International Law

- SOC 302 Environmental Sociology
- SOC 380 Urban Sociology
- any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from approved graduate-level courses, successfully completed while in the AMP, towards meeting the minor electives requirement. In meeting this requirement, the graduate-level courses must comply with the minor electives' distribution described above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in Environmental Sciences

This minor draws on the resources and expertise of several disciplines to develop scientific knowledge to solving global environmental issues.

Students enrolling in the environmental sciences minor should have normally completed a minimum of 30 credit hours of course work and be in good academic standing.

Students seeking a minor in environmental sciences must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - three credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

This minor is not open to students majoring in environmental sciences and sustainability.

Minor Requirements
(3 credit hours)

Students must successfully complete the following course:

- ENV 201 Fundamentals of Environmental Sciences and Sustainability

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following list:

- BIO 330 Ecosystems Management
- BIO 335 Microbiology
- BIO 351 Conservation Biology
- CHE 461 Air Pollution
- CHE 467 Corrosion
- CHE 472 Water and Wastewater Treatment Design
- CHM 345 Instrumental Analysis
- ENV 311 Environmental Modeling
- ENV 352 Environmental Toxicology and Risk
- ENV 356 Climate Change
- ENV 394/494 special topic courses in environmental sciences
- ENV 451 Sustainable Waste Management
- ENV 491 Senior Research Project
- any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from approved graduate-level courses, successfully completed while in the AMP, towards meeting the minor electives requirement. In meeting this requirement, the graduate-level courses must comply with the minor electives' distribution described above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Department of English

Kristen Highland, Head

Faculty

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Maya Aghasi
Khawlah Ahmed
Adnan Ajšić
Sara AlAleeli
Sebah Al-Ali
Mutasim Al-Deaibes
Ahmad Al-Issa
Diala Awwad
Raja Bahloul
Neslihan Bilikozen
Randa Bou-Mehdi
Rohan Chhetri
Laurence Craven
Brad Curabba
Eric De Barros
Hoda El Bakhour
Maria Eleftheriou
Tharwat El-Sakran
Amira ElSoussi
Daniel Fredrick
Nawar Al-Hassan Golley
Vincent Greenier
Christopher Horger
Paul Hudson
David Lee Knott
Lejla Kucukalic
Jessica March
Brian McAllister
Philip McCarthy
Geoffrey Miller
Suzan Munday
Claire Murphy
Jasmina Najjar
Matthew Overstreet
Özgür Parlak
Sylvia Salvatore
Andrew Schenck
Ji Young Shim
Una Tanović
Namala Tilakaratna
Greg Vanderpyl
Krystie Wills
Adrian Matthew Zytkoskee

The mission of the Department of English is based on a liberal arts approach to education that aims to prepare students academically in English language and literature. The department offers a Bachelor of Arts in English Language and Literature. The Department of English also offers a minor in English language and literature, in addition to a Master of Arts degree in Teaching English to Speakers of Other Languages (TESOL). For more details on the master's degree program, please refer to the AUS Graduate Catalog.

Students taking courses in literature and language learn to analyze global intellectual and cultural traditions, ideals and values in order to enhance self-understanding and empathy for others. They study the ways that societies are defined in relation to culture, nationality, race, ethnicity and gender. They learn to analyze and explain implied and expressed cultural values and attitudes in works of literature, and to explain the development of human institutions, ideas and social structures. Literature and (applied) linguistics courses are also related to the social sciences, elucidating ideas in sociology, psychology, history, language theory, political science and cultural studies.

The Department of English teaches courses to satisfy the AUS General Education Program core requirements, in addition to academic and professional writing. Academic and professional writing courses focus on different rhetorical principles such as audience, context and purpose that build a foundation for future professional and academic reading and writing tasks.

Bachelor of Arts in English Language and Literature (BAELL)

The mission of the Bachelor of Arts in English Language and Literature degree program is to foster intellectual inquiry through an integrated approach to language and literature and to prepare students to engage with the complex relationship between language, texts, thought and culture. This degree program emphasizes critical reading skills, the analysis of texts and language in context, and clarity in writing. Students will deepen their appreciation of cultural diversity and increase their understanding of how language and literature function to shape, interpret, and challenge meaning and values. This degree program prepares students for graduate study and careers in diverse fields, including education, media, and professional writing and publishing.

Program Goals

The Bachelor of Arts in English Language and Literature program seeks to:

- provide an introduction to the disciplines of language and literature and the complex ways that written and spoken language and diverse texts shape understanding and meaning
- train students in the core concepts, methodologies, and analytical and theoretical approaches in both language and literature
- develop students' understanding of English language and literature within historical, cultural, aesthetic and structural contexts
- enable students to appreciate cultural diversity through the culturally contextualized study of language and literature
- foster an intellectually stimulating and rigorous environment that encourages critical and ethical interpretations of language and literature

Program Outcomes

Upon graduation from the Bachelor of Arts in English Language and Literature program, students will be able to:

- analyze the central themes, concepts and ideas of a work of literature and its literary, cultural or historical significance
- recognize literature as a body of knowledge open to multiple interpretations subject to cultural, theoretical or critical approach
- identify the complexity of language as a communication system shaped by cognitive, cultural, social and emotional factors
- assess the distinctive properties of human language and its acquisition, the patterns and forms of language, the process of language change and variation, and the role of language in reflecting and constructing social identities
- construct clear, grammatically consistent and rhetorically effective papers
- engage in a critical dialogue in language and literature through scholarly research
- demonstrate understanding of how language and literature and their study help us engage with questions of justice, ethics and diversity in the wider world

Admission to the Program

Admission to the degree program follows the university's undergraduate admission requirements.

AUS students transferring into the program must have achieved a minimum cumulative GPA of 2.00. For more details, please check with the head of the department or the college Associate Dean for Undergraduate Affairs. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

To qualify for graduation with a Bachelor of Arts in English Language and Literature, students must successfully complete the following minimum requirements:

- a minimum of 120 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 39 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 30 credit hours of major requirements
  - a minimum of 27 credit hours in major electives
  - a minimum of 21 credit hours of free electives selected in courses at the 100 level or above
  - a five-week (or 200 hours) internship in an English language or literature-related field (ENG 497)
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 39 credit hours)

Students must successfully complete a minimum of 39 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: a minimum of six credit hours taken from the natural sciences area
- mathematics requirement: MTH 100 or MTH 103 or MTH 111
- statistics requirement: STA 202
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through ENG 490

- discipline-specific writing-intensive course requirement: satisfied through ENG 490
- oral proficiency requirement: satisfied through ENG 490
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through STA 202

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (30 credit hours)

- ENG 185 Playing with Texts
- ENG 210 Introduction to Literature
- ENG 223 Introduction to Language Study
- ENG 224 English Grammar
- ENG 234 Language in Society
- ENG 250 World Literature
- ENG 300 Literary and Critical Theory
- ENG 332 Psychology of Language
- ENG 490 Senior Research Project
- ENG 495 Seminar in English
- ENG 497 Internship in English Language and Literature

Major Electives (minimum of 27 credit hours)

Students must successfully complete a minimum of 27 credit hours of major elective courses selected in consultation with their advisor from the lists of courses below and distributed as follows:

- a minimum of nine credit hours in English language elective courses
- a minimum of nine credit hours in English literature elective courses
- a maximum of nine credit hours in approved English language and literature-related courses

English Language Electives (a minimum of 9 credit hours)

- ENG 302 Stylistics
- ENG 321 Language and Culture
- ENG 326 Development of the English Language
- ENG 331 The Sound Patterns of Language
- ENG 334 Meaning in Language
- ENG 372 English and Globalization
- ENG 382 Language Variation in Media
- ENG 385 Language and Gender
- ENG 394/494 approved special topic courses in English language. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- ENG 401 Advanced English Grammar
- ENG 405 Discourse Analysis
- ENG 420 Teaching and Learning English as a Foreign Language

English Literature Electives (a minimum of 9 credit hours)

- ENG 201 Introduction to Creative Writing
- ENG 214 Seventeenth to Nineteenth Century American Literature
- ENG 303 Global Shakespeare
- ENG 305 Contemporary World Literature
- ENG 308 British Literature Until 1600
- ENG 309 British Literature: 1600–1800
- ENG 311 Twentieth Century British Literature
- ENG 314 Twentieth Century American Literature
- ENG 315 Colonial and Post-Colonial Literature
- ENG 340 Comics
- ENG 345 Writing Narrative Nonfiction
- ENG 369 Poetry and Poetics
- ENG 378 Literature as Film
- ENG 394/494 approved special topic courses in English literature. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- ENG 410 The American Novel
- ENG 416 Modern Drama and Beyond
- ENG 421 The Novel

English Language and Literature-related courses (a maximum of 9 credit hours)

- ARA 301 Arabic Prose to the end of the Abbasid Era
- ARA 307 Arabs and the "Other"
- ARA 340 The Social Context of Arabic
- MDC 320 Intercultural Communication
- MDC 378 Literary Journalism
- MDC 385 Women and Film
- PHI 303 Political Philosophy
- PHI 304 Themes in Western Thought
- PHI 309 Ethics and the Environment
- PSY 305 Cognitive Psychology
- PSY 309 Psychology of Bilingualism
- PSY 312 Psychology of Creativity
- THE 301 Musical Theatre History
- THE 361 Playwriting
- TRA 301 Modern Media Translation
- WST 250 Women's Voices Across Cultures
- approved interdisciplinary studies (IDS) courses at the 300 level or above

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. In meeting this requirement, the graduate-level courses must comply with the major electives' distribution described above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives (minimum of 21 credit hours)

Students must successfully complete a minimum of 21 credit hours of free electives selected from courses at the 100 level or above.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

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

FIRST YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MTH 100	Fundamentals of Logic and Geometry	3
	WRI 101	Academic Writing I	3
	GER-Core	History and Culture of the Arab World	3
	GER-Core	Culture in a Critical Perspective	3
	GER-SCI	Natural Sciences	3
		Total	**15**
Spring	ENG 185	Playing With Texts	3
	STA 202	Introduction to Statistics for Social Sciences	3
	WRI 102	Academic Writing II	3
	GER-Core	Arts and Literature	3
	GER-SCI	Natural Sciences	3
		Total	**15**

SECOND YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENG 210	Introduction to Literature	3
	ENG 223	Introduction to Language Study	3
	ENG 203 or ENG 204	Writing about Literature or Advanced Academic Writing	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**15**
Spring	ENG 250	World Literature	3
	ENG 224	English Grammar	3
	ENG 234	Language in Society	3
	MJE	Major Elective (English Literature)	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENG 300	Literary and Critical Theory	3
	ENG 332	The Psychology of Language	3
	MJE	Major Elective (English Language)	3
	GER-COM	Communication	3
	FRE	Free Elective	3
		Total	**15**
Spring	ENG 495	Seminar in English	3
	MJE	Major Elective (English Language)	3
	MJE	Major Elective (English Literature)	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	FRE	Free Elective	3
		Total	**15**
Summer	ENG 497	Internship in English Language and Literature	0

FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MJE	Major Elective (English Language)	3
	MJE	Major Elective (English Literature)	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	ENG 490	Senior Research Project	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Minor in English Language and Literature

The minor in English language and literature enables students to study the ways in which English language and literature function as a communication system, expand our knowledge of human nature, and deepen our capacity for empathy. It investigates the complex relationship between language, texts, thought, and culture. The minor provides students with rigorous training in closely reading texts, analyzing linguistic and literary aspects of texts, and constructing complex, sophisticated arguments. Students enrolling in the English language and literature minor should have normally completed a minimum of 30 credit hours of course work and be in good academic standing.

Students seeking a minor in English language and literature must successfully complete the following requirements:

- a minimum of 15 credit hours including:
  - six credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of nine credit hours of the 15 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(6 credit hours)

Students must successfully complete the following courses:

- ENG 210 Introduction to Literature
- ENG 223 Introduction to Language Study

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in approved 300-level or above ENG courses.

Department of International Studies

Yuting Wang, Head

Faculty

Rana Abulbasal
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Giacomo Chiozza
Jessica Lauren Davis
Kristina Katsos
Alisher Khaliyarov
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Kurt Mertal
Nikolai Mukhin
James Onley
Matteo Salvadore
Akshay Sarathi
Gokhan Savas
Bethany Shockley
Salma Thani
Sundar Vadlamudi
Neha Vora
Siu Hei Wong
Marco Zuccato

The Department of International Studies offers opportunities to develop an appreciation for and fuller understanding of global issues within the context of a diverse multidisciplinary curriculum. Courses encourage students to develop a critical awareness of the ways in which global forces shape and transform regional, national, political, social, cultural and economic change.

Bachelor of Arts in International Studies (BAIS)

Sharjah's history as an important trading center and cultural meeting place makes American University of Sharjah an especially appropriate place for international studies. The international studies degree program offers students the opportunity to prepare to take an active role in an increasingly complex global environment. The interdisciplinary degree program assists students in acquiring a broad understanding of world cultures, politics and history and prepares them for careers in government, business and with international organizations.

The Department of International Studies offers a Bachelor of Arts in International Studies and minors in history, international studies, Middle Eastern studies and philosophy. Additionally, the department offers a Master of Arts degree in International Studies. For more details on the master's degree program, please refer to the *AUS Graduate Catalog*.

Program Mission

The Bachelor of Arts in International Studies degree program seeks to provide a foundation for assuming leadership roles in a wide variety of government, non-government, public policy, private and corporate organizations. Elective courses within the degree program encourage students to deepen their engagement with one or more of the areas introduced in the core requirements.

Program Goals

The Bachelor of Arts in International Studies program seeks to:

- provide an introduction to the disciplines that focus on how global forces influence political, social, cultural and economic change
- enable students to think critically about global issues from a variety of disciplinary perspectives
- provide opportunities to consider the place of the Middle East and the Arab world in international affairs and the study of international relations
- provide opportunities to prepare for careers in governmental and nongovernmental organizations
- create a challenging intellectual environment that encourages the development of the skills and abilities necessary for dealing with change in a global context

Program Outcomes

Upon graduation from the Bachelor of Arts in International Studies program, students will be able to:

- identify and explain the impact of key political, historical and cultural developments both globally and regionally
- demonstrate an understanding of the basic concepts, analytical perspectives and methodologies employed in the disciplines of anthropology, history, philosophy, political science and sociology
- evaluate source material for validity, accuracy and biases
- communicate effectively in writing and in oral presentations
- compare and contrast cultures and systems of value
- demonstrate an understanding of the importance of ethical behavior and social responsibility
- demonstrate the capacity for independent research

Admission to the Program

Admission to the degree program follows the university's undergraduate admission requirements.

AUS students transferring into the program must have achieved a minimum cumulative GPA of 2.00. In the event that there are more qualified AUS students transferring into the program than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college Associate Dean for Undergraduate Affairs. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

To qualify for graduation with a Bachelor of Arts in International Studies, students must successfully complete the following minimum requirements:

- a minimum of 120 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 39 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - a minimum of 45 credit hours in major requirements
  - a minimum of 18 credit hours in major electives
  - a minimum of 15 credit hours of free electives
  - a six-week internship in international studies (INS 497)
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 39 credit hours)

Students must successfully complete a minimum of 39 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:

  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: a minimum of six credit hours taken from the natural sciences area
- mathematics requirement: MTH 100 or MTH 102 or MTH 103 or MTH 111
- statistics requirement: STA 202
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses and/or in 200-level and above English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through PHI 208
- discipline-specific writing intensive course requirement: satisfied through INS 490 or INS 499
- oral proficiency requirement: satisfied through INS 490 or INS 499
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through STA 202

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (45 credit hours)

- ANT 205 World Cultures
- ECO 202 Principles of Macroeconomics
- HIS 217 The World in the Twentieth Century
- INS 120 Global Problems
- INS 300 Research Design and Source Analysis
- INS 305 Politics and Ideology
- INS 307 International Security
- INS 322 Global Political Economy
- INS 325 Imperialism
- INS 360 Global Stratification and Inequality
- INS 490 Senior Research Project or INS 499 Honors Thesis
- INS 497 Internship in International Studies
- PHI 208 Modern Philosophy
- POL 201 Introduction to Political Studies
- POL 202 Introduction to International Relations
- SOC 201 Introduction to Sociology

Major Electives (minimum of 18 credit hours)

Students must successfully complete a minimum of 18 credit hours of major electives selected in consultation with their advisor from courses at the 300 level or above. Electives may be any course from the following disciplines that is not a major requirement:

- anthropology
- economics
- environmental sciences
- history
- international studies
- philosophy
- political science
- psychology
- sociology

Students may also take approved interdisciplinary studies (IDS) courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives (minimum of 15 credit hours)

Students must successfully complete a minimum of 15 credit hours of free electives selected from courses at the 100 level or above.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Arts in International Studies (BAIS)

FIRST YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	INS 120	Global Problems	3
	MTH 100	Fundamentals of Logic and Geometry	3
	WRI 101	Academic Writing I	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural Sciences	3
		Total	**15**
Spring	ANT 205	World Cultures	3
	ECO 202	Principles of Macroeconomics	3
	STA 202	Introduction to Statistics for Social Sciences	3
	WRI 102	Academic Writing II	3
	GER-SCI	Natural Sciences	3
		Total	**15**
SECOND YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENG 203 or ENG 204	Writing About Literature or Advanced Academic Writing	3
	HIS 217	The World in the Twentieth Century	3
	POL 201	Introduction to Political Studies	3
	GER-Core	Culture in a Critical Perspective	3
	GER-Core	Arts and Literature	3
		Total	**15**
Spring	INS 360	Global Stratification and Inequality	3
	PHI 208	Modern Philosophy	3
	POL 202	Introduction to International Relations	3
	SOC 201	Introduction to Sociology	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	INS 307	International Security	3
	INS 325	Imperialism	3
	INS 305	Politics and Ideology	3
	GER-Core	Human Interaction and Behavior	3
	GER-COM	Communication	3
		Total	**15**
Spring	IEN 301	Innovation and Entrepreneurship Mindset	3
	INS 300	Research Design and Source Analysis	3
	INS 322	Global Political Economy	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**15**
Summer	INS 497	Internship in International Studies	0
FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	INS 490 or INS 499	Senior Research Project or Honors Thesis	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Minor in History

Sundara Vadlamudi, Coordinator

The minor in history enables students to encounter the academic exploration of humanity's past. Students are introduced to the study of global and regional history as well as specialized historical subjects. The minor also provides students with basic comprehension of historical method by exposing them to the sustained study of primary sources and theories of historical interpretation and by requiring them to become cognizant of independent historical research.

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

Students seeking a minor in history must successfully complete the following requirements:

- a minimum of 15 credit hours including:
  - six credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of nine credit hours of the 15 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(6 credit hours)

Students must satisfy the following requirements:

- Students must successfully complete one of the following world history survey courses:
  - HIS 205 World History I: Ancient and Medieval Worlds
  - HIS 206 World History II: The Modern World
  - HIS 217 The World in the Twentieth Century
- Students must successfully complete one of the following regional options:
  - HIS 204 Modern Arab History
  - HIS 210 The Making of Modern Europe
  - HIS 222 African History since 1800
  - HIS 224 History of Modern South Asia

  - HIS 226 Maritime History and Culture
  - HIS 240 Introduction to American History

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following list:

- INS 320 Human Rights in World Politics
- INS 335 Marxism and Communism
- INS 340 Fascism and the Populist Radical Right in Europe
- INS 345 Islam in South Asia
- INS 365 Disease and Disaster in History
- POL 312 Understanding Terrorism: A Critical Analysis
- any HIS courses at the 300 level or above
- any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in International Studies

Yuting Wang, Coordinator

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

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

Students seeking a minor in international studies must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - three credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(3 credit hours)

Students must successfully complete the following course:

- INS 120 Global Problems

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following list:

- INS 230 History, Culture and Society of the United Arab Emirates
- INS 300 Research Design and Source Analysis
- INS 301 Globalization
- INS 307 International Security
- INS 320 Human Rights in World Politics
- INS 322 Global Political Economy
- INS 325 Imperialism
- INS 330 Women and Politics
- INS 335 Marxism and Communism
- INS 340 Fascism and the Populist Radical Right in Europe
- INS 345 Islam in South Asia
- INS 350 Moot Court
- INS 365 Disease and Disaster in History
- INS 420 Social Theory
- MDC 309 Social Media Content and Strategy
- MDC 360 Crisis and Conflict Communication
- POL 300 Comparative Politics
- POL 304 International Organizations
- POL 305 Public International Law
- POL 308 American Foreign Policy
- POL 312 Understanding Terrorism: Acritical analysis
- POL 409 Politics and Civil Society in the Middle East
- any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in Middle Eastern Studies

Sammy Zeyad Badran, Coordinator

The minor in Middle Eastern studies introduces students to the study of the history, politics and society of the Middle East. The interdisciplinary nature of the program allows students to explore subjects of particular interest and gain an in-depth understanding of the region.

Students seeking a minor in Middle Eastern studies must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - three credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credits hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(3 credit hours)

Students must successfully complete the following course:

- HIS 204 Modern Arab History

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses from the following list:

- ARA 306 Arabic Travel Writing
- ARA 307 Arabs and the "Other"
- ARA 320 The Andalusian Symbiosis
- ARA 340 The Social Context of Arabic
- ECO 315 Economics of the Middle East
- FIN 370 Fundamentals of Islamic Finance
- HIS 307 Modern Palestinian History
- HIS 308 Ottoman History
- HIS 310 Modern Gulf History
- POL 409 Politics and Civil Society in the Middle East
- any approved special topic courses. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in Philosophy

Kurt Mertel, Coordinator

The minor in philosophy enables students to encounter the academic discipline of philosophy by exploring the fundamental ideas and values that structure social realities. Students acquire competence of the key concepts, theories and methodologies drawn from both Western and non-Western traditions. The minor provides students with basic comprehension of philosophical methods by exposing them to the sustained study of primary sources and theories of philosophical interpretation and by requiring them to cultivate the critical thinking skills that are essential to successfully navigating an increasingly dynamic and complex social world.

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

Students seeking a minor in philosophy must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - three credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements (6 credit hours)

Students must successfully complete one history of philosophy course and one systematic philosophy course for a total of six credit hours.

History of Philosophy Courses:

- PHI 202 Introduction to Islamic Philosophy
- PHI 207 Existentialism
- PHI 208 Modern Philosophy

Systematic Philosophy Courses:

- PHI 201 Introduction to Philosophy
- PHI 206 Ethics and Information Technology

Minor Electives
(minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses selected from the following list:

- ENG 300 Literary and Cultural Theory
- INS 350 Moot Court
- INS 420 Social Theory
- any PHI course at the 300 level or above
- any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in Sociology

Rana Abulbasal, Coordinator

The minor in sociology enables students to engage with the systematic study of society and human behavior. Students explore how social structures, cultural norms and institutional forces shape individuals and communities across local and global contexts. The program introduces students to key sociological theories, concepts and research methods while encouraging critical reflection on issues such as inequality, power, gender, environment and social change.

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

Students seeking a minor in sociology must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - three credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(3 credit hours)

Students must successfully complete one of the following courses:

- SOC 201 Introduction to Sociology
- SOC 203 Social Problems and Inequality

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours selected from the following:

- INS 420 Social Theory
- SOC 302 Environmental Sociology
- SOC 320 East Asian Societies
- SOC 370 Women's Empowerment and International Development
- SOC 380 Urban Sociology
- any approved special topic courses in sociology or related fields at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Department of Media Communication

Mohammad Ayish, Interim Head

Faculty
Abeer Al-Najjar
Fatima Barakji
Bentley Brown
Suheil Dahdal
Loubna El Mkaouar
Joseph Gibbs
Zoe Hurley
Sreya Mitra
Hania Nashef
Maria Laura Ruiu

Bachelor of Arts in Media Communication (BAMDC)

The Bachelor of Arts in Media Communication supports the AUS mission by providing students with knowledge and practice in the discipline of media communication to serve the needs of the region and to encourage students' professional and personal growth and development.

Following international standards for similar media communication models, the degree program has been adapted to the specific pedagogic and social challenges and requirements of the GCC region. The Department of Media Communication strives to maintain close contact with its students and alumni to foster their personal and professional growth, maturity and their sense of social responsibility with particular reference to the profound social and cultural influence they will have as members of communications industries.

Program Mission

The Bachelor of Arts in Media Communication program seeks to provide a balanced foundation of professional competencies involving digital storytelling, social media, integrated communications and academic knowledge of the discipline of media communication in general and the department's specific professional concentrations in journalism and integrated marketing communications.

Program Goals

The Bachelor of Arts in Media Communication program strives to:

- provide students with a grounding in the various perspectives found in the academic discipline of media communication in its traditional and new digital formats, fostering students' critical and analytical faculties in media communication
- furnish students with theoretical and strategic knowledge required of media professionals in the digital age
- equip graduates for competencies required for entry-level positions in the media industries

The Bachelor of Arts in Media Communication program offers a blend of academic and professional training in two concentrations: integrated marketing communications and journalism. These programs strive to develop knowledge and skills in digital and multiplatform communications for their respective industries.

Program Outcomes

Bachelor of Arts in Media Communication

Upon graduation from the Bachelor of Arts in Media Communication program, students should be able to:

- articulate the dominant quantitative and qualitative research methods and paradigms found in the discipline of media communication and employ these research methods in their professional careers
- demonstrate an understanding of the role that mass media (including new digital/social media) play in the production of everyday life, culture and belief
- employ digital storytelling, multi-platform, social and integrated communications techniques in the production of content

Concentration in Integrated Marketing Communications

Upon graduation from the Bachelor of Arts in Media Communication program, students with an integrated marketing communications concentration should also be able to:

- demonstrate knowledge and practice of the latest theoretical and professional developments in the field of integrated marketing communications
- skillfully employ best practices in digital storytelling, multiplatform production, social engagement and integrated communication practices found in the field of integrated marketing communications

Concentration in Journalism

Upon graduation from the Bachelor of Arts in Media Communication program, students with a concentration in journalism should also be able to:

- demonstrate knowledge and practice of the latest institutional, methodological and professional developments in the fields of print, web, and broadcast journalism
- skillfully employ best practices found in the fields of print, broadcast, and online journalism

Admission to the Program

Admission to the degree program follows the university's undergraduate admission requirements.

AUS students transferring into the program must have achieved a minimum cumulative GPA of 2.00. Students who do not meet the minimum cumulative GPA requirement must consult with the department. If advised by the department to complete MDC 150, MDC 225 and MDC 231, students who successfully complete the three courses with a minimum average of 2.50 will be admitted into the program. For more details, please check with the head of the department or the college Associate Dean for Undergraduate Affairs. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

To qualify for graduation with a Bachelor of Arts in Media Communication, students must successfully complete the following minimum requirements:

- a minimum of 120 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 39 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - a minimum of 24 credit hours of MDC major requirements and major electives
  - a minimum of 30 credit hours of concentration requirements and concentration electives

  - a minimum of five weeks (normally 200 hours) of on-the-job training (MDC 497) with a professional firm
  - a minimum of 24 credit hours of free electives from non-MDC courses at the 100 level or above
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or the free electives requirement. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 39 credit hours)

Students must successfully complete a minimum of 39 credit hours as follows:

- a minimum of 15 credit hours from non-MDC courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: a minimum of six credit hours taken from the natural sciences area
- mathematics requirement: MTH 100 or MTH 103 or MTH 111
- statistics requirement: STA 202
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses meeting this requirement, including ENG 203 or ENG 204, and ENG 208
- ethical understanding requirement: satisfied through MDC 321
- discipline-specific writing intensive course requirement: satisfied through MDC 231
- oral proficiency requirement: satisfied through ENG 208
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through MDC 101

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (18 credit hours)

- MDC 101 Digital Video Skills I
- MDC 150 Introduction to Media Communication
- MDC 225 Media Theory
- MDC 231 Writing for Media
- MDC 311 Media Research Methods and Data Analytics
- MDC 321 Media Law and Ethics
- MDC 497 Media Communication Internship

Media Communication Internship (MDC 497)

The internship comprises a minimum of five weeks (normally 200 hours) of on-the-job training with a professional firm. All students in the BAMDC program must fulfill the internship requirement. Depending on their program concentration, students will choose to do their internship in news media, marketing communications or public relations agencies and departments to add practical training to their academic learning.

For details on internship eligibility and registration, please refer to Internship Registration in the Academic Policies and Regulations section earlier in this catalog.

Major Electives (minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours of accessible 300-level or above MDC courses not listed as major or concentration requirements. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. In meeting this requirement, the graduate-level courses must comply with the major electives' distribution described above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Concentration in Integrated Marketing Communications (IMC) (minimum of 30 credit hours)

Students who select the IMC concentration must successfully complete a minimum of 30 credit hours as follows:

Concentration Requirements (24 credit hours)

- MDC 222 Principles of Integrated Marketing Communications
- MDC 322 Case Studies in Integrated Marketing Communications
- MDC 323 Multiplatform Media Planning
- MDC 326 Content Creation for Integrated Marketing Communications
- MDC 424 Social Media Strategies
- MDC 485 Integrated Marketing Communications Campaigns
- MKT 201 Fundamentals of Marketing
- Students must successfully complete three credit hours in courses selected from the following list:
  - MKT 301 Consumer Behavior
  - MKT 302 Marketing Research
  - MKT 309 Global Marketing
  - MKT 365 Services Marketing
  - MKT 370 Brand Management

Concentration Electives (minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses selected from the following list:

- MDC 302 Digital Video Skills II
- MDC 309 Social Media Content and Strategy
- MDC 360 Crisis and Conflict Communication
- MDC 367 Digital Marketing Communications
- MDC 376 Writing for Magazines
- MDC 377 Photojournalism
- MDC 394/494 approved special topic courses in media communication. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Concentration in Journalism (minimum of 30 credit hours)

Students who select the journalism concentration must successfully complete a minimum of 30 credit hours as follows:

Concentration Requirements (24 credit hours)

- MDC 275 Principles of Journalism
- MDC 310 Infographics for Journalism
- MDC 371 News Writing
- MDC 381 Digital Storytelling for Journalists
- MDC 474 Field News Reporting
- MDC 479 Multimedia Journalism
- Students must successfully complete two courses selected from the following list:

- HIS 208 Women in History
- HIS 307 Modern Palestinian History
- HIS 310 Modern Gulf History
- POL 201 Introduction to Political Studies
- POL 202 Introduction to International Relations
- TRA 210 Introduction to Translation

Concentration Electives
(minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses selected from the following list:

- MDC 302 Digital Video Skills II
- MDC 309 Social Media Content and Strategy
- MDC 374 Feature Writing
- MDC 376 Writing for Magazines
- MDC 377 Photojournalism
- MDC 378 Literary Journalism
- MDC 394/494 approved special topic courses in media communication. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- MDC 480 Critical Media Analysis

Free Electives
(minimum of 24 credit hours)

Students must successfully complete a minimum of 24 credit hours of free electives selected from non-MDC courses at the 100 level or above.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Arts in Media Communication (BAMDC)
Concentration: Integrated Marketing Communications

FIRST YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MDC 101	Digital Video Skills I	3
	MTH 100	Fundamentals of Logic and Geometry	3
	WRI 101	Academic Writing I	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural Sciences	3
		Total	**15**
Spring	MDC 150	Introduction to Media Communication	3
	STA 202	Introduction to Statistics for Social Sciences	3
	WRI 102	Academic Writing II	3
	GER-Core	Human Interaction and Behavior	3
	GER-SCI	Natural Sciences	3
		Total	**15**

SECOND YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENG 203 or ENG 204	Writing About Literature or Advanced Academic Writing	3
	MDC 231	Writing for Media	3
	GER-Core	Arts and Literature	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**
Spring	ENG 208	Public Speaking	3
	MDC 222	Principles of Integrated Marketing Communications	3
	MDC 225	Media Theory	3
	MKT 201	Fundamentals of Marketing	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**15**

THIRD YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	IEN 301	Innovation and Entrepreneurship Mindset	3
	MDC 311	Media Research Methods and Data Analytics	3
	MDC 322	Case Studies in Integrated Marketing Communications	3
	MDC 323	Multiplatform Media Planning	3
	MJE	Major Elective	3
		Total	**15**
Spring	MDC 321	Media Law and Ethics	3
	MDC 326	Content Creation for Integrated Marketing Communications	3
	CNE	Concentration Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Summer	MDC 497	Media Communication Internship	0

FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MDC 424	Social Media Strategies	3
	CNR	Concentration Requirement – MKT course	3
	CNE	Concentration Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MDC 485	Integrated Marketing Communications Campaigns	3
	FRE	Free Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Proposed Sequence of Study
Bachelor of Arts in Media Communication (BAMDC)
Concentration: Journalism

FIRST YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MDC 101	Digital Video Skills I	3
	MTH 100	Fundamentals of Logic and Geometry	3
	WRI 101	Academic Writing I	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural Sciences	3
		Total	**15**
Spring	MDC 150	Introduction to Media Communication	3
	STA 202	Introduction to Statistics for Social Sciences	3
	WRI 102	Academic Writing II	3
	GER-Core	Arts and Literature	3
	GER-SCI	Natural Sciences	3
		Total	**15**
SECOND YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENG 203 or ENG 204	Writing About Literature or Advanced Academic Writing	3
	MDC231	Writing for Media	3
	GER-Core	Culture in a Critical Perspective	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**15**
Spring	ENG 208	Public Speaking	3
	MDC 225	Media Theory	3
	MDC 275	Principles of Journalism	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	IEN 301	Innovation and Entrepreneurship Mindset	3
	MDC 310	Infographics for Journalism	3
	MDC 311	Media Research Methods and Data Analytics	3
	MDC 321	Media Law and Ethics	3
	MJE	Major Elective	3
		Total	**15**
Spring	MDC 371	News Writing	3
	MDC 381	Digital Storytelling for Journalists	3
	CNE	Concentration Electives	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Summer	MDC 497	Media Communication Internship	0
FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MDC 474	Field News Reporting	3
	CNE	Concentration Elective	3
	CNR	Concentration Requirement	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MDC 479	Multimedia Journalism	3
	CNR	Concentration Requirement	3
	FRE	Free Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Minor in Integrated Marketing Communications

Students applying to the integrated marketing communications minor should have normally completed a minimum of 30 credit hours of course work and be in good academic standing.

Students seeking a minor in integrated marketing communications must successfully complete the following requirements:

- a minimum of 18 credit hours including:
  - nine credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of nine credit hours of the 18 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

The integrated marketing communications minor is not open to media communication students.

Minor Requirements (9 credit hours)

Students must successfully complete the following courses:

- MDC 150 Introduction to Media Communication
- MDC 222 Principles of Integrated Marketing Communications
- MDC 231 Writing for Media

Minor Electives (minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in 300 level or above MDC courses selected from the integrated marketing communications concentration's required or elective courses.

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from approved graduate-level courses, successfully completed while in the AMP, towards meeting the minor electives requirement. In meeting this requirement, the graduate-level courses must comply with the minor electives' distribution described above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in Journalism

Students applying to the journalism minor should have normally completed a minimum of 30 credit hours of course work and be in good academic standing.

Students seeking a minor in journalism must successfully complete the following requirements:

- a minimum of 18 credit hours including:
  - nine credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of nine credit hours of the 18 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credits hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

This minor is not open to media communication students.

Minor Requirements
(9 credit hours)

Students must successfully complete the following courses:

- MDC 150 Introduction to Media Communication
- MDC 231 Writing for Media
- MDC 275 Principles of Journalism

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in 300 level or above MDC courses selected from the journalism concentration's required or elective courses.

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from approved graduate-level courses, successfully completed while in the AMP, towards meeting the minor electives requirement. In meeting this requirement, the graduate-level courses must comply with the minor electives' distribution described above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Department of Mathematics and Statistics

Abdul Salam Jarrah, Head

Faculty
Taher Abualrub
Marwan Abukhaled
Ghada Alobaidi
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Mahmoud Anabtawi
Diana Audi
Zafer Selcuk Aygin
Ayman Badawi
Youssef Belhamadia
Gabriel Jarry Bolduc
Stephen Chan
Kamal Diki
Cristian Enache
James Griffin
Sadok Kallel
Saadia Khouyibaba
Omar Lazar
Guillaume Leduc
Issam Louhichi
Mujo Mesanovic
Sujoy Mukherjee
Ahmad Rafiqi
Hana Sulieman
Amjad Tuffaha
Abdel Rahman Yousef
Yuanyuan Zhang

The Department of Mathematics and Statistics seeks to develop, campus-wide, the level of mathematical, statistical and data science skills as well as the quantitative and logical reasoning required for individuals to make informed decisions and excel in their chosen disciplines. It also extends these capabilities into the wider community. The department aims to equip students with the analytical ability and critical-thinking strategies needed to assume future leadership roles. Innovative teaching and learning environments provide opportunities to hone problem-solving techniques applicable across fields. Graduates are well-prepared for both immediate employment and advanced graduate study.

In addition to the Bachelor of Science in Mathematics and the Bachelor of Science in Data Science, the department offers a Master of Science in Mathematics and a Doctor of Philosophy in Mathematics. For details, please refer to the *AUS Graduate Catalog*.

Mission Statement

The primary mission of the Department of Mathematics and Statistics is to educate students in the core competencies of mathematics, statistics and data science, while fostering the critical thinking and analytical skills necessary for success. The department delivers an American-style education, conducts internationally recognized research across these disciplines, and engages with the wider community through professional consultation, academic collaboration and outreach activities.

Bachelor of Science in Data Science (BSDSC)

The mission of the Bachelor of Science in Data Science degree program is to equip students with the essential skills and knowledge in data analysis, interpretation and problem-solving, enabling them to generate valuable, actionable insights. The degree program provides a robust foundation in mathematics, statistics and computing, enhanced by practical, hands-on experience in analyzing real-world datasets. This comprehensive education prepares graduates to meet the evolving demands of the job market and make meaningful contributions across various industries.

Program Goals

The Bachelor of Science in Data Science seeks to:

- provide students with a deep understanding of mathematics, statistics and programming skills, which are crucial for mastering data science
- develop specialized skills in data analysis, ensuring students can navigate and leverage the tools and methodologies central to the field
- equip students with the ability to apply data science techniques to solve complex problems in various domains, while instilling a strong sense of ethical responsibility in data usage and management
- enhance students' abilities in articulating complex data insights to non-experts and foster teamwork skills, preparing students to work effectively in diverse, interdisciplinary environments

- encourage students' continuous personal and professional growth in the field of data science, including the ability to adapt to emerging tools and technologies, and foster teamwork abilities to collaborate effectively on multidisciplinary projects

Program Outcomes

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

- demonstrate a solid understanding of the foundation of data science including statistics, mathematics and programming skills
- show proficiency in key programming languages like Python and R for data modeling and analysis
- employ statistical and analytical methods to analyze data and derive meaningful insights
- solve industry-specific problems using data science methods across various domains such as healthcare, finance and technology
- use research and critical thinking to address data-related issues, emphasizing continuous learning to keep pace with the field
- effectively communicate data insights to a variety of audiences, both in writing and verbally
- practice data science ethically, considering privacy, security and societal impacts

Admission to the Program

Admission to the degree program follows the university's undergraduate admission requirements.

AUS students transferring into the program must have achieved a minimum cumulative grade point average (CGPA) of 2.00. In the event that there are more qualified AUS students transferring into the program than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college Associate Dean for Undergraduate Affairs. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

To qualify for graduation with a Bachelor of Science in Data Science, students must successfully complete the following minimum requirements:

- a minimum of 122 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 38 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: 3 credit hours
  - a minimum of 69 credit hours of major requirements and major electives
  - a minimum of 12 credit hours of free electives
  - a minimum of five weeks or 200 hours of a full-time, satisfactory internship in data science-related field (DSC 497)
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog

General Education Requirements (minimum of 38 credit hours

Students must successfully complete a minimum of 38 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: any two of the following options: BIO 101 and BIO 101L, BIO 102 and BIO 102L, CHM 101 and CHM 101L, CHM 102 and CHM 102L, PHY 101 and PHY 101L, PHY 102 and PHY 102L
- mathematics requirement: MTH 103
- statistics requirement: STA 201 or NGN 211 or QBA 201
- communication requirement: a minimum of nine credit hours in 100- level or above writing (WRI) courses and/or 200-level and above English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through DSC 490
- discipline-specific writing intensive course requirement: satisfied through DSC 490
- oral proficiency requirement: satisfied through DSC 490
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through CMP 120

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (54 credit hours)

- CMP 120 Programming I
- CMP 320 Database Systems
- DSC 210 Introduction to Data Science
- DSC 220 Python Programming for Data Science
- DSC 250 Exploratory Data Analysis
- DSC 280 Introduction to Probability for Data Science
- DSC 310 Data Visualization
- DSC 330 Regression Modeling
- DSC 380 Introduction to Machine Learning and Data Mining
- DSC 385 Computing in Data Science
- DSC 430 Applied Time Series
- DSC 470 Advanced Data Mining Techniques
- DSC 480 Deep Learning
- DSC 490 Senior Project
- DSC 497 Internship in Data Science
- MTH 104 Calculus II
- MTH 213 Discrete Mathematics
- MTH 221 Linear Algebra
- NGN 220 Digital Technology and Citizenship

Data Science Internship (DSC 497)

As part of their major requirements, students in the BSDSC program must successfully complete a zero-credit hour internship in an approved data science related field, for a minimum duration of five weeks (200 hours).

For details on internship eligibility and registration, please refer to Internship Registration under Registration and Course Information in the Academic Policies and Regulations section of the catalog.

Major Electives (minimum of 15 credit hours)

Students must successfully complete a minimum of 15 credit hours in courses selected from the following list, with a minimum of nine credit hours in DSC courses:

- CMP 305 Data Structures and Algorithms
- CMP 333 Artificial Intelligence
- DSC 320 Statistical Methods in Finance
- DSC 394/494 special topic courses in data science
- DSC 410 Text Mining
- DSC 420 Blockchain, Digital Currencies and Financial Technology
- DSC 450 Statistical Network Analysis and its Applications
- DSC 460 Introduction to Multivariate Data Analysis
- ECO 350 Management and Analysis of Economic Data
- ECO 351 Introduction to Econometrics
- ELE 456 Pattern Recognition
- FIN 340 Financial Crime
- FIN 430 Financial Forecasting
- INE 323 Stochastic Processes and Simulation
- INE 415 Design of Experiments
- MTH 382 Linear Programming and Optimization
- MTH 418 Graph Theory
- UPL 302 Analysis of Spatial Phenomena

Free Electives
(minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours of free elective courses selected from courses at the 100 level or above.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Science in Data Science (BSDSC)

FIRST YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MTH 103	Calculus I	3
	WRI 101	Academic Writing I	3
	GER-SCI	Natural Sciences	4
	GER-Core	History and Culture of the Arab World	3
	GER-Core	Arts and Literature	3
		Total	**16**
Spring	MTH 104	Calculus II	3
	STA 201	Introduction to Statistics for Engineering and Natural Sciences	3
	WRI 102	Academic Writing II	3
	GER-Core	Culture in a Critical Perspective	3
	GER-SCI	Natural Sciences	4
		Total	**16**
SECOND YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	DSC 210	Introduction to Data Science	3
	MTH 213	Discrete Mathematics	3
	CMP 120	Programming I	3
	DSC 280	Introduction to Probability for Data Science	3
	ENG 204	Advanced Academic Writing	3
		Total	**15**
Spring	DSC 220	Python Programming for Data Science	3
	DSC 250	Exploratory Data Analysis	3
	MTH 221	Linear Algebra	3
	NGN 220	Digital Technology and Citizenship	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	DSC 330	Regression Modeling	3
	DSC 310	Data Visualization	3
	MJE	Major Elective	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	FRE	Free Elective	3
		Total	**15**
Spring	CMP 320	Database Systems	3
	DSC 380	Introduction to Machine Learning and Data Mining	3
	DSC 385	Computing in Data Science	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Summer	DSC 497	Internship in Data Science	0
FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	DSC 430	Applied Time Series	3
	GER-Core	Course selected from General Education Core Requirements	3
	FRE	Free Elective	3
	DSC 470	Advanced Data Mining Techniques	3
	MJE	Major Elective	3
		Total	**15**
Spring	DSC 480	Deep Learning	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	DSC 490	Senior Project	3
		Total	**15**

Bachelor of Science in Mathematics (BSMTH)

The mission of the Bachelor of Science in Mathematics degree program is to expose students to the theoretical foundations of mathematics, to provide them with understanding of the broad outlines of modern mathematics and its applications in a variety of disciplines, to stimulate their interest in research and to prepare them for their future work.

Program Goals

The Bachelor of Science in Mathematics program seeks to provide students with:

- a strong background in calculus-based courses, including advanced calculus and differential equations
- the skills needed to successfully produce mathematical proofs expected at the undergraduate level
- exposure to diverse areas of mathematics, such as analysis, algebra, applied mathematics, discrete mathematics, and probability and statistics
- an understanding of algorithmic foundation, modeling tools, discrete phenomena and digital information environments
- the ability to think critically and independently about problems to facilitate the development of an aptitude for mathematical reasoning
- the mathematical and computing skills necessary to describe and solve technical problems that arise in business and industry
- a solid foundation in mathematics necessary for future development and/or graduate study

Program Outcomes

Upon completion of the Bachelor of Science in Mathematics, graduates should be able to:

- demonstrate knowledge and understanding of diverse areas in mathematics such as analysis, algebra, discrete mathematics and applied mathematics
- construct and effectively communicate valid mathematical arguments
- demonstrate a solid grounding in the ideas and techniques of mathematics
- apply mathematical analysis and mathematical skills to problems in other disciplines
- use discrete mathematical concepts in a variety of contexts such as algorithm development, computer programming and network development and implementation
- demonstrate the ability to identify and carry out thoughtful approaches to problem solving
- define and execute simple research tasks, and assist in more complex research tasks as required for professional work
- formulate a problem in mathematical terms from descriptions written in language specific to disciplines associated with engineering, finance and the natural sciences
- obtain the research skills necessary to adapt to change and remain current in the field and continue to learn new information, skills and concepts

Admission to the Program

Admission to the degree program follows the university's undergraduate admission requirements.

AUS students transferring into the program must satisfy the following conditions:

- a minimum cumulative grade point average (CGPA) of 2.00
- a minimum grade of C (2.00) in each of MTH 104, MTH 205 and MTH 221

In the event that there are more qualified AUS students transferring into the major than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college Associate Dean for Undergraduate Affairs. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

To qualify for graduation with a Bachelor of Science in Mathematics, students must successfully complete the following minimum requirements:

- a minimum of 123 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 41 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - a minimum of 64 credit hours of major requirements and major electives
  - a minimum of 15 credit hours of free electives
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 41 credit hours)

Students must successfully complete a minimum of 41 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: any two of the following options: BIO 101 and BIO 101L, BIO 102 and BIO 102L, CHM 101 and CHM 101L, CHM 102 and CHM 102L, PHY 101 and PHY 101L, PHY 102 and PHY 102L
- mathematics requirement: MTH 103
- statistics requirement: STA 201
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses meeting this requirement, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through MTH 490
- discipline-specific writing intensive course requirement: satisfied through MTH 490
- oral proficiency requirement: satisfied through MTH 490
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through MTH 243

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (34 credit hours)

- MTH 104 Calculus II
- MTH 203 Calculus III
- MTH 205 Differential Equations
- MTH 213 Discrete Mathematics

- MTH 221 Linear Algebra
- MTH 243 Introduction to Mathematical Programming
- MTH 311 Intermediate Analysis
- MTH 312 Advanced Calculus
- MTH 320 Abstract Algebra I
- MTH 343 Numerical Analysis I
- MTH 350 Introduction to Probability
- MTH 490 Senior Project

Major Electives
(minimum of 30 credit hours)

Students must successfully complete a minimum of 30 credit hours as follows:

Math Electives
(minimum of 15 credit hours)

After consulting with their academic advisors, students must successfully complete a minimum of 15 credit hours of major electives at the 300 level or above, with at least 6 at the 400 level, from any MTH/STA courses not listed as major requirements.

Electives in Related Areas
(maximum of 15 credit hours)

With the approval of their advisors, students may complete a maximum of 15 credit hours in courses at the 200 level or above from courses in biology, chemistry, data science, environmental sciences, physics, engineering and computer science, accounting, economics and finance.

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. In meeting this requirement, the graduate-level courses must comply with the major electives' distribution described above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives
(minimum of 15 credit hours)

Students must successfully complete a minimum of 15 credit hours of free elective courses selected from courses at the 100 level or above.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Science in Mathematics (BSMTH)

FIRST YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MTH 103	Calculus I	3
	WRI 101	Academic Writing I	3
	GER-SCI	Natural Sciences	4
	GER-Core	History and Culture of the Arab World	3
	FRE	Free Elective	3
		Total	**16**
Spring	MTH 104	Calculus II	3
	STA 201	Introduction to Statistics for Engineering and Natural Sciences	3
	WRI 102	Academic Writing II	3
	GER-Core	Culture in a Critical Perspective	3
	GER-SCI	Natural Sciences	4
		Total	**16**

SECOND YEAR (31 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENG 203 or ENG 204	Writing About Literature or Advanced Academic Writing	3
	MTH 203	Calculus III	3
	MTH 213	Discrete Mathematics	3
	MJE	Elective in Related Areas	3
	GER-Core	Arts and Literature	3
		Total	**15**
Spring	MTH 205	Differential Equations	3
	MTH 221	Linear Algebra	3
	MTH 243	Introduction to Mathematical Programming	1
	MJE	Math Elective	3
	GER-COM	Communication	3
	FRE	Free Elective	3
		Total	**16**

THIRD YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	IEN 301	Innovation and Entrepreneurship Mindset	3
	MTH 311	Intermediate Analysis	3
	MTH 350	Introduction to Probability	3
	MJE	Math Elective	3
	MJE	Elective in Related Areas	3
		Total	**15**
Spring	MTH 320	Abstract Algebra I	3
	MTH 343	Numerical Analysis I	3
	MJE	Math Elective	3
	MJE	Elective in Related Areas	3
	FRE	Free Elective	3
		Total	**15**

FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MTH 312	Advanced Calculus	3
	MJE	Math Elective	3
	MJE	Elective in Related Areas	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
		Total	**15**
Spring	MTH 490	Senior Project	3
	MJE	Elective in Related Areas	3
	MJE	Math Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**

Minor in Actuarial Mathematics

Students enrolling in the actuarial mathematics minor should have normally completed a minimum of 30 credit hours of course work and be in good academic standing.

Students seeking a minor in actuarial mathematics must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - nine credit hours of minor requirements
  - a minimum of three credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(9 credit hours)

Students must successfully complete three of the following courses:

- MTH 304 Mathematics of Finance
- MTH 305 Life Contingencies
- MTH 307 Theory of Risk
- MTH 308 Mathematics of Derivative Securities

Minor Electives
(minimum of 3 credit hours)

Students must successfully complete a minimum of three credit hours in courses selected from the following list:

- One of the following courses not used as a minor requirement:
  - MTH 304 Mathematics of Finance
  - MTH 305 Life Contingencies
  - MTH 307 Theory of Risk
  - MTH 308 Mathematics of Derivative Securities
- ACC 201 Fundamentals of Financial Accounting
- BIS 101 Business Information Systems
- CMP 120 Programming I
- CMP 220 Programming II
- CMP 305 Data Structures and Algorithms
- ECO 351 Introduction to Econometrics
- ECO 451 Advanced Econometrics
- ECO 452 Economic Forecasting
- FIN 201 Fundamentals of Financial Management
- FIN 310 Analysis of Financial Statements
- FIN 320 Banking
- FIN 330 Investments
- FIN 375 Trading and Financial Markets
- FIN 389 Advanced Financial Modeling
- ISA 201 Fundamentals of Information Systems and Business Analytics
- ISA 301 Fundamentals of Database Management
- ISA 321 Object-Oriented Programming for Business Applications
- ISA 388 Business Analytics
- MTH 350 Introduction to Probability
- STA 301 Foundations of Statistics for Data Science
- STA 401 Introduction to Data Mining
- any 400-level FIN course. AMP students may use an approved graduate-level FIN course towards meeting this requirement. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- MTH or STA 394/494 approved special topic courses in the areas of actuarial mathematics, probability and statistics. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- MTH or STA approved graduate-level courses (AMP students only). Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the minor electives requirement. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Minor in Applied and Computational Mathematics

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

Students seeking a minor in applied and computational mathematics must successfully complete the following requirements:

- a minimum of 15 credit hours including:
  - six credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of nine credit hours of the 15 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credits hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

This minor is not open to students majoring in mathematics.

Minor Requirements
(6 credit hours)

Students must successfully complete the following courses:

- MTH 343 Numerical Analysis I or
  CVE 325 Numerical Methods in Engineering or
  MCE 325 Numerical Methods in Engineering

- MTH 351 Methods of Applied Mathematics

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses meeting the following requirements:

- a minimum of three credit hours in approved 300-level or above MTH and/or STA courses. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- a maximum of six credit hours in courses from the following list:
  - CHE 300 Fluid Mechanics
  - CHE 307 Heat Transfer
  - CHE 421 Chemical Process Dynamics and Control
  - CMP 305 Data Structures and Algorithms
  - CMP 333 Artificial Intelligence
  - CMP 340 Design and Analysis of Algorithms
  - CMP 466 Machine Learning and Data Mining
  - CVE 410 Computer Methods in Structural Analysis
  - ECO 451 Advanced Econometrics
  - ECO 452 Economic Forecasting
  - ELE 324 Digital Signal Processing
  - ELE 360 Probability and Stochastic Processes for Electrical Engineers or COE 375 Modeling and Simulation of Stochastic Systems
  - ELE 456 Pattern Recognition
  - INE 322 Operations Research II
  - INE 323 Stochastic Processes and Simulation
  - INE 415 Design of Experiments
  - MCE 410 Control Systems
  - MCE 473 Applied Finite Element Analysis
  - MCE 482 Intermediate Fluid Mechanics
  - MCE 488 Introduction to Computational Fluid Dynamics
  - MTH 203 Calculus III
  - MTH 205 Differential Equations
  - MTH 221 Linear Algebra
  - PHY 310 Mathematical Methods in Physics
  - PHY 320 Classical Mechanics
  - PHY 330 Electromagnetics Theory or ELE 311 Electromagnetics

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from approved graduate-level courses, successfully completed while in the AMP, towards meeting the minor electives requirement. In meeting this requirement, the graduate-level courses must comply with the minor electives' distribution described above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in Data Science

Students enrolling in the data science minor should have normally completed a minimum of 30 credit hours of course work and be in good academic standing.

Students seeking a minor in data science must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - six credit hours of minor requirements
  - a minimum of six credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credits hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(6 credit hours)

Students must successfully complete the following requirements:

- STA 301 Foundations of Statistics for Data Science
- STA 401 Introduction to Data Mining or CMP 466 Machine Learning and Data Mining
  or ISA 388 Business Analytics

Minor Electives
(minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses selected from the following list:

- ACC 380 Data Analytics for Accounting
- CHE 443 Design and Analysis of Experiments
- CMP 305 Data Structures and Algorithms
- CMP 320 Database Systems
- CMP 333 Artificial Intelligence
- COE 375 Modeling and Simulation of Stochastic Systems or
  ELE 360 Probability and Stochastic Processes for Electrical Engineers
- ECO 350 Management and Analysis of Economic Data
- ECO 351 Introduction to Econometrics
- ECO 451 Advanced Econometrics
- ECO 452 Economic Forecasting
- ELE 456 Pattern Recognition
- ELE 460 Deep Networks in Machine Learning
- FIN 430 Financial Forecasting
- INE 323 Stochastic Processes and Simulation
- INE 415 Design of Experiments
- ISA 301 Fundamentals of Database Management
- ISA 377 Data Visualization for Business
- MDC 311 Media Research Methods and Data Analytics
- MTH 221 Linear Algebra
- MTH 350 Introduction to Probability
- MTH 382 Linear Programming and Optimization
- MTH or STA 394/494 approved special topic courses in the areas of probability, optimization and statistics
- STA 233 Introduction to Survey Sampling and Analysis
- UPL 302 Analysis of Spatial Phenomena

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from approved graduate-level courses, successfully completed while in the AMP, towards meeting the minor electives requirement. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Department of Physics

Said Sakhi, Head

Faculty

Shahin AbdulNabi
Rami Moustafa Abdul-Rahim Ali
Ali Alnaser
Moaz Al-Tarawneh
Randa Asa'd
Mehmet Egilmez
Sami El-Khatib
Nidhal Guessoum
Nasser Hamdan
Bing S. Lu
Najeeb Punnakayathil
Hasan Sahin
Isra Siry
Raza Syed

Besides preparing physics graduates with in-depth knowledge and unique skills, the Department of Physics aims to provide students of engineering and other applied sciences with a solid grounding in physics, which is essential for progress in their respective fields of study. The department also offers some courses on conceptual physics and astronomy as part of the natural sciences general education requirement.

Bachelor of Science in Physics (BSPHY)

Program Mission

The Bachelor of Science in Physics seeks to provide graduates with a solid educational foundation in physics with an interdisciplinary emphasis that encompasses knowledge from other disciplines such as mathematics, natural sciences, engineering and the liberal arts. Graduates will be trained and prepared to pursue careers in industry, teaching and research.

Program Goals

The Bachelor of Science in Physics seeks to:

- provide students with up-to-date knowledge of physics principles and their applications
- prepare students for careers in industry, research and teaching, as well as for possible graduate study
- provide a research-based learning environment that is conducive to acquiring and analyzing data, developing experimental approaches to physics, and practicing the scientific research method
- provide opportunities for student undergraduate research projects under the guidance of the physics faculty
- maintain a dynamic curriculum that reflects the evolving needs of the region and the world
- foster the development of lifelong learners who think critically and solve problems creatively by integrating liberal studies, professional education, and co-curricular and extracurricular learning.

Program Outcomes

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

- apply the basic laws of physics
- apply the theoretical and computing skills necessary to describe and solve problems that arise in physics
- design and conduct experiments, as well as analyze and interpret data using advanced analytical and characterization instrumentation techniques
- demonstrate competence in critical thinking and professional communication skills using both oral and written means for summarizing, evaluating and presenting scientific content using resources found in the scientific literature
- demonstrate understanding of the impact of physics principles in global, economic, environmental and societal contexts

Admission to the Program

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

AUS students transferring into the program must satisfy the following conditions:

- a minimum cumulative grade point average (CGPA) of 2.00
- successful completion of PHY 101 and PHY 102 with a minimum average of 2.00

For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

To qualify for graduation with a Bachelor of Science in Physics, students must successfully complete the following minimum requirements:

- a minimum of 120 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 41 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - a minimum of 46 credit hours of major requirements
  - a minimum of 15 credit hours of major electives
  - a minimum of 15 credit hours of free electives
  - a minimum of five weeks of internship of approved applied work in physics-related organization, laboratory, agency or firm
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 41 credit hours)

Students must successfully complete a minimum of 41 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: PHY 101, PHY 101L, CHM 101 and CHM 101L
- mathematics requirement: MTH 103
- statistics requirement: STA 201
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses, including ENG 203 or ENG 204
- ethical understanding requirement: satisfied through PHY 491
- discipline-specific writing intensive course requirement: satisfied through PHY 491
- oral proficiency requirement: satisfied through PHY 491
- information literacy requirement: satisfied through WRI 102, and ENG 203 or ENG 204
- computer literacy requirement: satisfied through PHY 310

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (46 credit hours)

- MTH 104 Calculus II
- MTH 203 Calculus III
- MTH 205 Differential Equations or MTH 225 Differential Equations and Linear Algebra
- PHY 102 General Physics II
- PHY 102L General Physics Laboratory II
- PHY 106 General Physics III
- PHY 113 Introduction to Astrophysics
- PHY 200L Intermediate Physics laboratory
- PHY 201 Modern Physics
- PHY 203 Introduction to Electronics
- PHY 310 Mathematical Methods in Physics
- PHY 320 Classical Mechanics
- PHY 330 Electromagnetic Theory or ELE 311 Electromagnetics
- PHY 350 Quantum Mechanics
- PHY 397 Internship in Physics
- PHY 400L Contemporary Experimental Physics
- PHY 460: Thermodynamics and Statistical Physics
- PHY 491 Senior Research Project I

Major Electives (minimum of 15 credit hours)

Students must successfully complete a minimum of 15 credit hours of major electives selected in consultation with their advisor.

Physics Electives (minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following list of physics electives:

- PHY 301 Energy Sources
- PHY 313 Satellites and Space Physics
- PHY 332 Properties of Matter
- PHY 360 Fundamentals of Nanophysics
- PHY 394/494 approved special topic courses in physics. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- PHY 492 Senior Research Project II

Electives in Related Areas (maximum of 6 credit hours)

Students must successfully complete a maximum of six credit hours in courses at the 300 level or above selected from courses in the following physics-related areas: CBE, CHE, CHM, CMP, CVE, ELE, ENV, MCE and MTH.

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. In meeting this requirement, the graduate-level courses must comply with the major electives' distribution described above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives (minimum of 15 credit hours)

Students must successfully complete a minimum of 15 credit hours of free elective courses selected from courses at the 100 level or above.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Science in Physics (BSPHY)

FIRST YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHM 101	General Chemistry I	3
	CHM 101L	General Chemistry Laboratory I	1
	MTH 103	Calculus I	3
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing I	3
		Total	**14**
Spring	MTH 104	Calculus II	3
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	PHY 113	Introduction to Astrophysics	3
	WRI 102	Academic Writing II	3
	GER-Core	History and Culture of the Arab World	3
		Total	**16**
SECOND YEAR (31 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENG 203 or ENG 204	Writing About Literature or Advanced Academic Writing	3
	MTH 205	Differential Equations	3
	PHY 106	General Physics III	3
	PHY 201	Modern Physics	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**15**
Spring	MTH 203	Calculus III	1
	PHY 200L	Intermediate Physics Laboratory	1
	PHY 203	Introduction to Electronics	3
	STA 201	Introduction to Statistics for Engineering and Natural Sciences	3
	GER-Core	Human Interaction and Behavior	3
	GER-COM	Communication	3
		Total	**16**

THIRD YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	IEN 301	Innovation and Entrepreneurship Mindset	3
	PHY 310	Mathematical Methods in Physics	3
	PHY 320	Classical Mechanics	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
		Total	**15**
Spring	PHY 330 or ELE 311	Electromagnetic Theory or Electromagnetics	3
	PHY 350	Quantum Mechanics	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**15**
Summer	PHY 397	Internship in Physics	0
FOURTH YEAR (29 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	PHY 400L	Contemporary Experimental Physics	2
	PHY 460	Thermodynamics and Statistical Physics	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**14**
Spring	PHY 491	Senior Research Project I	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**

Minor in Applied Physics

The minor in applied physics offers interested science and engineering students the opportunity to further their knowledge in the areas of space physics, physics of lasers and semiconductors. Interested students must seek the approval of the head of the Department of Physics. Students enrolling in the applied physics minor should have normally completed a minimum of 30 credit hours of course work and be in good academic standing.

Students seeking a minor in applied physics must successfully complete the following requirements:

- a minimum of 18 credit hours including:
  - nine credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of nine credit hours of the 18 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credits hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(9 credit hours)

Students must successfully complete the following courses:

- PHY 101 General Physics I or PHY 102 General Physics II
- PHY 106 General Physics III or PHY 113 Introduction to Astrophysics
- PHY 201 Modern Physics

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a total of nine credit hours of electives as follows:

Physics Elective Courses
(a minimum of 3 credit hours)

- PHY 301 Energy Sources
- PHY 310 Mathematical Models in Physics
- PHY 313 Satellites and Space Physics
- PHY 320 Classical Mechanics
- PHY 330 Electromagnetic Theory
- PHY 332 Properties of Matter
- PHY 350 Quantum Mechanics
- PHY 360 Fundamentals of Nanophysics
- any approved 300-level or above PHY courses. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Physics-Related Elective Courses
(a maximum of 6 credit hours)

- CHM 330 Physical Chemistry I
- ELE 311 Electromagnetics
- MCE 313 Engineering Measurements
- MCE 344 Heat Transfer

Department of Psychology

Pekka Santtila, Head

Faculty
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Christopher Bryan
Ehab Hermena
Juana Park
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Tatiana Tairi
Lucy Tavitian-Elmadjian
Burcu Ünlütabak

Bachelor of Arts in Psychology (BAPSY)

Program Mission

The Bachelor of Arts in Psychology degree program seeks to provide an evidence-based foundation of research and analytic skills in addition to broad academic knowledge in the field of psychology. The program facilitates a deep understanding of human behavior and experience, as well as professional skills that provide a firm foundation for careers in research, counseling, business, human services and other fields.

Program Goals

The Bachelor of Arts in Psychology program aims to:

- provide students with knowledge of psychological theory, methodology and applications
- foster critical thinking and an ability to develop evidence-based arguments
- enhance students' academic communication and interpersonal skills
- provide students with the ability to use psychological knowledge and skills for professional and personal development
- help students develop a sense of cultural, social and ethical competence

Program Outcomes

Upon graduation from the Bachelor of Arts in Psychology program, students will be able to:

- describe and apply key concepts, principles and overarching themes in psychology
- apply the research process and its underlying ethical standards in collecting, analyzing and interpreting data
- interpret, explain and evaluate scientific sources of information through evidence-based analyses, both verbally and in writing
- demonstrate the ability to apply psychological knowledge and skills to the development of personal and career goals
- demonstrate an understanding of social and cultural factors that influence human behavior

Admission to the Program

Admission to the degree program follows the university's undergraduate admission requirements.

AUS students transferring into the program must have achieved a minimum cumulative GPA of 2.00. Students who do not meet the minimum cumulative GPA requirement must consult with the department. In the event that there are more qualified AUS students transferring into the major than available spaces, students will be admitted based on academic achievement. For more details, please check with the head of the department or the college Associate Dean for Undergraduate Affairs. For information on how to submit a change of major request, please refer to Fields of Study/Change of Major under the Academic Policies and Regulations section earlier in the catalog.

Degree Requirements

To qualify for graduation with a Bachelor of Arts in Psychology, students must successfully complete the following minimum requirements:

- a minimum of 120 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 39 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 27 credit hours of major requirements
  - a minimum of 27 credit hours of major electives
  - a minimum of 24 credit hours of free electives
  - a five-week internship in psychology
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 39 credit hours)

Students must successfully complete a minimum of 39 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: a minimum of six credit hours taken from the natural sciences area, including BIO 103, or BIO 101 and BIO 101L
- mathematics requirement: MTH 100 or MTH 103 or MTH 111
- statistics requirement: STA 202
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses meeting this requirement, including ENG 204
- ethical understanding requirement: satisfied through PSY 250
- discipline-specific writing intensive course requirement: satisfied through PSY 404
- oral proficiency requirement: satisfied through PSY 490
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through PSY 350

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (27 credit hours)

- PSY 101 Introduction to Psychology
- PSY 102 Social Psychology
- PSY 250 Research Methods I
- PSY 350 Research Methods II
- Clinical and Biopsychology Requirement:
  - PSY 301 Abnormal Psychology or
  - PSY 303 Health Psychology or
  - PSY 311 Biopsychology
- Culture Requirement:
  - PSY 321 Cultural Psychology or
  - PSY 322 Stereotypes, Prejudice and Discrimination or
  - PSY 323 Psychology of Religion
- PSY 403 Personal and Professional Development
- PSY 404 History and Systems
- PSY 490 Research Design
- PSY 497 Internship in Psychology

Major Electives (minimum of 27 credit hours)

Students must successfully complete a minimum of 27 credit hours of major electives selected in consultation with their advisor, with a minimum of 15 credit hours in courses at the 300 level or above. A minimum of 15 credit hours out of the 27 credit hours must be successfully completed in PSY courses not required for the major.

PSY Electives (minimum of 15 credit hours)

- PSY 302 Developmental Psychology
- PSY 304 Personality Psychology
- PSY 305 Cognitive Psychology
- PSY 306 Organizational Psychology
- PSY 309 Psychology of Bilingualism
- PSY 312 Psychology of Creativity
- PSY 313 Psychotherapy and Counseling
- PSY 314 Psychology of Teaching and Learning
- PSY 331 Psychology of Language Development
- PSY 351 Psychology Research Experience

When not counted as major requirements, the following courses will also count as major electives:

- PSY 301 Abnormal Psychology
- PSY 303 Health Psychology
- PSY 311 Biopsychology
- PSY 321 Cultural Psychology
- PSY 322 Stereotypes, Prejudice and Discrimination
- PSY 323 Psychology of Religion
- PSY 394/494 approved special topic courses in psychology. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Non PSY Electives

- ANT 205 World Cultures
- BIO 101 General Biology I
- BIO 101L General Biology Laboratory I
- BIO 102 General Biology II
- BIO 102L General Biology Laboratory II
- BIO 210 Introduction to Human Anatomy and Physiology
- BIO 260 Genetics and Molecular Biology
- BIO 341 Principles of Pharmacology
- BIO 361 Evolution and Biodiversity
- BIO 371 Principles of Neuroscience
- BIO 372 Sensory Perception
- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- ECO 301 Intermediate Microeconomics
- ECO 341 Behavioral Economics
- ECO 351 Introduction to Econometrics
- MDC 222 Principles of Integrated Marketing Communications
- MGT 201 Fundamentals of Management
- MGT 301 Organizational Behavior
- MKT 201 Fundamentals of Marketing
- MKT 301 Consumer Behavior
- MTH 350 Introduction to Probability
- POL 201 Introduction to Political Studies
- POL 202 Introduction to International Relations
- SOC 201 Introduction to Sociology
- STA 233 Introduction to Survey Sampling and Analysis

Free Electives (minimum of 24 credit hours)

Students must successfully complete a minimum of 24 credit hours of free electives selected from courses at the 100 level or above.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Arts in Psychology (BAPSY)

FIRST YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	BIO 103	Introduction to Human Biology	3
	PSY 101	Introduction to Psychology	3
	WRI 101	Academic Writing I	3
	GER-Core	History and Culture of the Arab World	3
	GER-MTH	Mathematics	3
		Total	**15**
Spring	PSY 102	Social Psychology	3
	STA 202	Introduction to Statistics for Social Sciences	3
	WRI 102	Academic Writing II	3
	GER-SCI	Natural Sciences	3
	FRE	Free Elective	3
		Total	**15**

SECOND YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENG 204	Advanced Academic Writing	3
	PSY 250	Research Methods I	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Arts and Literature	3
		Total	**15**
Spring	PSY 301 or PSY 303 or PSY 311	Abnormal Psychology or Health Psychology or Biopsychology	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**15**

THIRD YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	PSY 350	Research Methods II	3
	MJE	Major Elective	3
	GER-COM	Communication	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
		Total	**15**
Spring	IEN 301	Innovation and Entrepreneurship Mindset	3
	PSY 321 or PSY 322 or PSY 323	Cultural Psychology or Stereotypes, Prejudice and Discrimination or Psychology of Religion	3
	PSY 403	Personal and Professional Development	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**15**
Summer	PSY 497	Internship in Psychology	0

FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	PSY 490	Research Design	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**
Spring	PSY 404	History and Systems	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Minor in Psychology

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

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

Students seeking a minor in psychology must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - three credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(3 credit hours)

Students must successfully complete the following course:

- PSY 101 Introduction to Psychology

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following list, with a minimum of six credit hours in courses at the 300 level:

- PSY 102 Social Psychology
- PSY 250 Research Methods I
- PSY 301 Abnormal Psychology
- PSY 302 Developmental Psychology
- PSY 303 Health Psychology
- PSY 304 Personality Psychology
- PSY 305 Cognitive Psychology
- PSY 306 Organizational Psychology
- PSY 309 Psychology of Bilingualism
- PSY 311 Biopsychology
- PSY 312 Psychology of Creativity
- PSY 313 Psychotherapy and Counseling
- PSY 314 Psychology of Teaching and Learning
- PSY 321 Cultural Psychology

- PSY 322 Stereotypes, Prejudice and Discrimination
- PSY 323 Psychology of Religion
- PSY 331 Psychology of Language Development
- PSY 350 Research Methods II
- PSY 351 Psychology Research Experience
- any approved special topic courses in psychology. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Performing Arts Program

Christina Wright-Ivanova, Coordinator

Faculty

Albert Agha
Damon Dandridge
Isabela Marchi Tavares Di Melo
Lina Hejjawi
Feryal Qudourah
Anthony Tassa
Lina Younes

Program Mission

The Performing Arts Program advances creativity, cultural understanding and interdisciplinary collaboration through personalized and globally engaged education in music, theatre, dance and related artistic practices. Through small faculty-to-student ratios and individualized mentorship, students develop as thoughtful artists, scholars and innovators who engage critically with diverse cultural traditions and contemporary artistic practices. Rooted in the liberal arts, the department promotes the performing arts as a vital means of exploring global heritage, advancing inclusion and connecting creative expression with broader social, technological and humanistic inquiry.

Program Goals

The Performing Arts Program seeks to provide students with:

- knowledge of various genres and perspectives of music and music theory
- the ability to distinguish the construction of music
- musicianship skills that can be applied to individual and ensemble performances
- an appreciation for the art and craft of theatre through production and presentation
- a thorough understanding of theatrical elements gained through performance and theoretical studies

Minor in Music

The minor in music offers students a foundation in both musical and theoretical elements of different global musical styles, with a focus on the role of music in relation to its global, cultural and social contexts. Students explore music theory, music history, pedagogy and applied practice in their chosen instrument.

Students seeking a minor in music must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - six credit hours of minor requirements
  - a minimum of six credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credits hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

All course prerequisites must be satisfied. Auditions are required for performance courses.

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements (6 credit hours)

Students must successfully complete six credit hours as follows:

- MUS 100 Music Fundamentals or MUS 101 Class Voice and Music Notation
- one of the following options:
  - a total of three credit hours from: MUS 252 Applied Lessons and/or MUS 255 Music Ensemble
  - MUS 272 Class Oud I
  - MUS 273 Class Piano I
  - MUS 280 Class Percussion
  - MUS 290 Class Qanun

Minor Electives (minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours as follows:

- one course from the following:
  - MUS 301 World Music
  - MUS 302 Women and the Performing Arts
  - MUS 303 American Pop
  - MUS 304 Music of the Arab World
  - THE 301 Musical Theatre History
  - any approved 300-level or above history-based MUS special topic course. Consult the online class schedule accessible via the AUS student information system to verity course classification.
- a minimum of three credit hours from the following:
  - a total of three credit hours from: MUS 352 Advanced Applied Lessons and/or MUS 355 Advanced Music Ensemble
  - MUS 356 Musical Theatre and Performance
  - MUS 373 Class Piano II
  - any approved 300-level or above performance-based MUS special topic course. Consult the online class schedule accessible via the AUS student information system to verity course classification.

Minor in Theatre

The minor in theatre provides students with a comprehensive foundation in theatrical production and performance, with particular emphasis on theatre's role within global, cultural and social contexts. Through interdisciplinary study and practice, students engage with a broad range of areas including acting, stagecraft, costume and makeup design, critical theory, pedagogy, movement and applied theatre practice. Grounded in process-based learning and the development of foundational artistic and analytical skills, the minor fosters creativity, collaboration and critical inquiry, while contributing to the liberal arts mission at AUS.

Students seeking a minor in theatre must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - six credit hours of minor requirements
  - a minimum of six credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor

successfully completed in residence at AUS
- a minimum of six credits hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

All course prerequisites must be satisfied. Auditions are required for rehearsal and performance courses.

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(6 credit hours)

Students must successfully complete six credit hours from the following:

- THE 101 Theatre Appreciation or THE 102 Introduction to Acting or THE 141 Stagecraft
- any combination of the following courses for a total of three credit hours:
  - THE 244 Theatrical Costume Lab (repeatable up to three times)
  - THE 245 Technical Theatre Lab (repeatable up to three times)
  - THE 251 Rehearsal and Performance (repeatable up to three times)

Minor Electives
(minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours from the following, with a minimum of three credit hours from 300-level or above THE courses:

- MUS 302 Women and the Performing Arts
- MUS 356 Musical Theatre and Performance
- THE 321 Arts Management
- THE 330 Dramatic Literature
- THE 342 Scenic Design
- THE 347 Costume Design
- any approved THE special topic courses at the 300-level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Other Minors Offered by the College of Arts and Sciences

Minor in Women's Studies

Nawar Al-Hassan Golley, Coordinator

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

Students seeking a minor in women's studies must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - three credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(3 credit hours)

Students must successfully complete one of the following two courses:

- WST 240 Introduction to Women's Studies
- WST 250 Women's Voices Across Cultures

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following list:

- ENG 385 Language and Gender
- INS 300 Research Design and Source Analysis
- INS 330 Women and Politics
- MDC 385 Women and Film
- MGT 321 Women in Leadership
- MUS 302 Women and the Performing Arts
- POL 409 Politics and Society in the Middle East
- SOC 370 Women's Empowerment and International Development
- WST 300 Women, Society and Technology
- any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.


MCM Studio
MCM Studio
MCM Studio





College of Engineering

Dean
Fadi Aloul

Associate Dean for Undergraduate Studies
Assim Sagahyroon

Associate Dean for Graduate Studies
Lotfi Romdhane

Associate Dean for Research, Innovation and Outreach
Mehdi Ghommem

The College of Engineering (CEN) offers bachelor of science (BS) degrees in several engineering disciplines and in computer science. These are all comprehensive curricula that emphasize quality, communication skills, application to real-world situations, interdisciplinary learning and team building. AUS College of Engineering graduates are well equipped to face the future. A degree from the AUS College of Engineering gives its holder access to a learned profession with opportunities for practice in industry, government, business, consulting and entrepreneurship. AUS engineering graduates are also well qualified for advanced studies toward a master's or doctoral degree leading to careers in research and development, engineering management and higher education teaching. Additionally, an engineering education is an excellent avenue to other professions such as law, medicine and public service.

ABET Accreditation

The bachelor of science degree programs in chemical engineering, civil engineering, computer engineering, electrical engineering, industrial engineering and mechanical engineering offered by the College of Engineering are accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org/.

The bachelor of science degree program in computer science offered by the College of Engineering is accredited by the Computing Accreditation Commission of ABET, http://www.abet.org/.

ABET is the recognized accreditor for college and university programs in applied science, computing, engineering and technology in the United States. ABET is a federation of 36 professional and technical societies representing these fields. ABET currently accredits approximately 4,564 programs at more than 895 colleges and universities in 40 countries worldwide and is recognized by the Council for Higher Education Accreditation in Washington, DC.

ABET accreditation demonstrates the university's continuing commitment to the quality of its programs so that CEN students are ready to practice once they graduate, and employers can count on AUS graduates to meet their needs.

Mission Statement

American University of Sharjah is a dynamic institution of higher education. As such, it offers its students an innovative educational environment. The university's degree programs are adapted to the needs of the citizenry of the United Arab Emirates and the Gulf Cooperation Council (GCC). In order to fulfill current and projected needs while maintaining an American-style curriculum, the College of Engineering has the following mission:

The College of Engineering at American University of Sharjah aspires to be the recognized leader in engineering education in Sharjah, across the UAE and the GCC, and to become a top choice by students, parents, faculty and staff who choose to contribute to engineering higher education.

The college's degree programs offer the highest level of professional and technical preparation, global preparedness and leadership development in an environment of English-language instruction and partnership between faculty and students. All programs offer state-of-the art technology, understanding and experimentation with design and problem-solving processes, and excellent opportunities to experience real-world and research project involvement.

Objectives and Outcomes

In order to help students be successful at AUS, the major educational objectives of the College of Engineering are to:

- assist students in achieving their potential through preparation for a successful and satisfying career in the engineering and computer science professions
- prepare well-educated graduates able to serve in regional and international practice with consideration of multicultural environments
- prepare a bachelor of science-level graduate to be successful in graduate studies in a related area
- offer undergraduate and graduate academic programs that are critical to the sustainable development of society and the quality of life in the region
- offer broad-based curricula worthy of accreditation nationally and internationally due to a thorough, balanced foundation in math, science and design principles, as well as the humanities and social sciences

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

- approach the system stages of problem identification, needs analysis, requirements definition, design, implementation, maintenance and phase-out using the lifecycle concept
- write, read and speak in private and public to peers, supervisors and employers in a coherent, organized fashion that demonstrates understanding of problems and solutions that are practical and implementable
- utilize in a variety of settings the fundamentals of math, science and engineering principles
- keep abreast of and utilize in their work current computer and software technologies that are relevant to the graduates' chosen fields
- achieve a recognized level of engineering practice and certification available to an engineering graduate serving in professional practice
- participate in, as well as lead, team-based activities using current technology, engineering practices and science principles
- make and implement ethical choices in all professional endeavors

Curriculum

The curriculum for each of the college's degree programs has its own distinguishable features; however, common threads of design and problem solving have been woven into the fabric of the curricula to ensure that each student receives the very best education tailored to the needs of the Middle Eastern student and industry. Except for a few variations, all first-year students pursuing an engineering degree take similar courses to ensure a sound, broadly based preparation in general education knowledge as well as a firm understanding of the principles and practices of all engineering disciplines. The first year for computer science is slightly different.

The engineering and computer science programs are intended to prepare graduates for regional as well as worldwide practice. The programs are designed to satisfy the general university

requirements and to meet the program criteria adopted by accreditation agencies both in the United Arab Emirates and in the United States. The degree programs emphasize learning, creativity, collaboration and innovation, as well as instill in their graduates leadership qualities anchored in moral and ethical principles. The college's faculty members provide an educational experience that is equivalent to those offered by leading state and private universities in the United States and Europe.

College of Engineering graduates will work in an international and very competitive environment. Graduates must possess English fluency in both written and spoken forms; hence, instruction and interaction between students and faculty members are conducted in English. English fluency is especially critical as more multinational corporations adopt English as the corporate language.

In various formats, the oral, written, graphical and software communication skills of a student are developed, demonstrated and assessed. This is accomplished foremost in the required laboratories, research papers, senior projects and professional training. Also, independent study one-on-one with faculty members is a valuable option available to the student. The critical use of paper and electronic forms of published literature is taught from the first semester in all curricula in the College of Engineering. Throughout the degree plan, students must use and are assessed on their ability to discover, understand and critically judge the quality of publicly available literature.

Well-equipped computer laboratories are provided for students during and after classes and laboratories. The menu of software systems available for design, analysis and synthesis tasks in classes, laboratories, senior projects and courses in other parts of campus is determined by what the faculty members teach in all of their courses. Each student must complete a team-based extensive senior project focused on a real-world problem that requires specification, design, analysis and synthesis as the problem-solving process is utilized. Faculty members serve as close advisors and monitor each student's progress. Additionally, each student must complete a professional training program extending for at least eight weeks, completed over the summer term of the third year. Many employers participate in this valuable experience.

Assessment and Evaluation of Curriculum

The College of Engineering has developed and implemented the Course Assessment and Improvement Process (CAIP). It is a comprehensive approach to the collection of student and faculty assessments of course material, delivery and student perception of learning. The results are used to improve course and laboratory content, delivery methods, testing and practical applications at the course level, for technical and supporting areas, as well as at the degree levels. The result is an ongoing process whereby students can be assured of improvements on a continuing basis.

Graduation Requirements

Engineering Programs

Each engineering program is designed for completion in four years, in addition to an eight-week professional training experience. Students whose academic backgrounds require the completion of preparatory courses in mathematics, English or physics will require more than four years to complete the engineering program. Even without preparatory courses, many students opt to take additional time to complete their program.

During the final year, a senior design (capstone) project must be completed over a two-course sequence.

Practical training in an engineering environment strengthens the student's preparation for engineering practice; therefore, all students must complete a minimum of eight weeks' professional training.

To qualify for graduation from an engineering program, students must successfully complete the following minimum requirement:

- a minimum of 130 credit hours, as follows:
  - a minimum of 38 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - a minimum of 83 credit hours in major requirements and major electives, which include courses in mathematics, sciences, engineering sciences and engineering design that ensure preparation for professional practice
  - a minimum of six credit hours of free electives
  - professional training working in a professional environment for at least eight weeks in the summer of the third year
- a minimum cumulative GPA of 2.00

Computer Science Program

The computer science program is designed for completion in four years, in addition to an eight-week professional training. Students whose academic backgrounds require the completion of preparatory courses in mathematics, English or physics will require more than four years to complete the program.

Students in the computer science program may elect to pursue a concentration in Artificial Intelligence and Machine Learning (AIML) or in Software Engineering (SE), or a double concentration in AIML and SE; they can also opt for a general computer science degree with no concentration.

During the final year, a senior design (capstone) project must be completed over a two-course sequence. Practical training in a computer science professional environment strengthens the student's preparation for professional practice.

To qualify for graduation with the Bachelor of Science in Computer Science, students must successfully complete the following minimum requirements:

- a minimum of 122 credit hours, as follows:
  - a minimum of 39 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - a minimum of 74 credit hours of major requirements and major electives for students in the general program, and a minimum of 77 credit hours of major requirements, and concentration required and elective courses for students selecting one concentration
  - a minimum of six credit hours of free electives for students in the general program and a minimum of three credit hours for students selecting one concentration
  - professional training working in a professional environment for at least eight weeks in the summer of the third year
- a minimum cumulative GPA of 2.00

Degree Programs

The College of Engineering offers the following undergraduate degree programs:

- Bachelor of Science in Chemical Engineering
- Bachelor of Science in Chemical and Biological Engineering
- Bachelor of Science in Civil Engineering
- Bachelor of Science in Computer Engineering
- Bachelor of Science in Computer Science
- Bachelor of Science in Digital Construction Engineering and Management
- Bachelor of Science in Electrical Engineering
- Bachelor of Science in Industrial Engineering
- Bachelor of Science in Intelligent Systems and Mechatronics Engineering
- Bachelor of Science in Mechanical Engineering

The College of Engineering also offers master's and PhD degree programs. For details on the College of Engineering graduate programs, please refer to the *AUS Graduate Catalog*.

Minor Offerings

The College of Engineering offers the following minors:

- aerospace engineering
- biomedical engineering
- computer engineering
- computer science
- electrical engineering
- engineering management
- environmental and water engineering
- mechanical engineering
- mechatronics engineering
- renewable energy
- safety and fire protection engineering
- transportation systems

Details on each minor are provided later in this section.

Computer Requirements

In order to make full use of the learning environment, in-class collaboration and work in groups on multidisciplinary projects, all entering undergraduate students must own a laptop or an Internet-capable device, meeting minimum specifications recommended by the university. These specifications are available on the IT FAQ site here: https://itfaq.aus.edu/faq/584. Students can email itservicedesk@aus.edu or call +971 6 515 2121 for any related questions. In addition, computer devices in specialized and technical labs are accessible to AUS students.

Department of Chemical and Biological Engineering

Paul Nancarrow, Interim Head

Faculty

Nabil Abdel-Jabbar
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Amani Al-Othman
Rachid Chebbi
Naif Darwish
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Ghaleb Husseini
Basel Khader
Yassir Makkawi
Paul Nancarrow
Rana Sabouni
Zarook Shareefdeen
Karnail Singh

Bachelor of Science in Chemical Engineering (BSChE)

The Bachelor of Science in Chemical Engineering program is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates.

The Bachelor of Science in Chemical Engineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Program Criteria for Chemical, Biochemical, Biomolecular and Similarly Named Engineering Programs.

Chemical engineers have many different responsibilities including design, analysis, research and development, supervision, production and sales. They manage the development of new technologies and products; they develop safe and environmentally benign processes that are efficient and economical to operate; and they direct the design, construction and operation of new plants, ranging from pilot plants to full-scale chemical facilities.

Chemical engineers are making unparalleled contributions in chemical and petrochemical processing, oil and gas facilities, water and energy sectors, food and pharmaceutical industries, pollution control and abatement, process automation, process control and modeling, and biochemical technology. The Department of Chemical and Biological Engineering offers a four-year program of study that prepares graduates to work in all areas of the chemical industry. Specifically, it is designed to help students in developing a basic knowledge in science, in engineering and in the fundamentals and practical knowledge of thermodynamics, fluid flow, heat transfer, mass transfer, reaction engineering, unit operation, process control, process simulation, plant design, process integration, cost estimation, pollution prevention and waste management.

Mission Statement

The mission of the chemical engineering degree program at AUS is to prepare students for a technical career, to be innovative and ethically responsible, and to provide leadership in chemical engineering and related disciplines.

Program Educational Objectives

The objectives of the chemical engineering degree program are to produce graduates who will:

- succeed in the chemical engineering profession through technical competence, effective communication, teamwork and leadership
- maintain a lifelong interest in learning for personal and professional development
- practice engineering in a manner that is ethically responsible and consistent with regulatory and social concerns

Student Outcomes

Upon graduation, an AUS graduate in chemical engineering should demonstrate:

- an ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental and economic factors
- an ability to communicate effectively with a range of audiences
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks and meet objectives
- an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Admission to the Program

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

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

Degree Requirements

Students seeking the BSChE degree must successfully complete the following minimum requirements:

- a minimum of 130 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:

  - a minimum of 38 credit hours in general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 74 credit hours of major requirements, including professional training for at least eight weeks
  - a minimum of nine credit hours of major electives
  - a minimum of six credit hours of free electives
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For more information, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 38 credit hours)

Students must successfully complete a minimum of 38 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: CHM 101, CHM 101L, PHY 101 and PHY 101L
- mathematics requirement: MTH 103 and MTH 104
- statistics requirement: satisfied through NGN 211
- communication requirement: a minimum of nine credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses, including ENG 204
- ethical understanding requirement: satisfied through CHE 432
- discipline specific writing intensive course requirement: satisfied through CHE 491
- oral proficiency requirement: satisfied through CHE 491
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through NGN 112 and CHE 240

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (74 credit hours)

- CHE 101 Introduction to Chemical and Biological Engineering
- CHE 205 Principles of Chemical Engineering I
- CHE 206 Principles of Chemical Engineering II
- CHE 214 Chemical Engineering Thermodynamics I
- CHE 230 Materials Science
- CHE 240 Computer Methods in Chemical Engineering
- CHE 300 Fluid Mechanics
- CHE 304 Chemical Engineering Thermodynamics II
- CHE 307 Heat Transfer
- CHE 321 Chemical Reaction Engineering
- CHE 329 Mass Transfer
- CHE 350 Chemical Engineering Laboratory I
- CHE 412 Separation Processes
- CHE 421 Chemical Process Dynamics and Control
- CHE 432 Process Design and Economics
- CHE 433 Chemical Process Safety
- CHE 451 Chemical Engineering Laboratory II
- CHE 452 Process Dynamics and Control Laboratory
- CHE 490 Senior Design Project I
- CHE 491 Senior Design Project II
- CHM 102 General Chemistry II
- CHM 102L General Chemistry Laboratory II
- CHM 215 Organic Chemistry I
- CHM 217 Organic Chemistry Laboratory I
- MTH 203 Calculus III
- MTH 225 Differential Equations and Linear Algebra
- NGN 110 Introduction to Engineering and Computing
- NGN 112 Introduction to Artificial Intelligence and Data Science
- NGN 211 Introduction to Engineering Probability and Statistics
- NGN 397 Professional Training in Engineering and Computing
- PHY 102 General Physics II
- PHY 102L General Physics Laboratory II

Major Electives (minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following list, with a minimum of six credit hours in CHE courses:

- BME 420 Biomedical Electronics I
- CBE 384 Biochemical Engineering Principles
- CBE 483 Fundamentals of Biomedical Engineering
- CHE 434 Petroleum Refining Processes
- CHE 436 Natural Gas Processing
- CHE 442 Electrochemical Engineering and Energy Systems
- CHE 443 Design and Analysis of Experiments
- CHE 461 Air Pollution
- CHE 467 Corrosion
- CHE 470 Waste Management and Control in Chemical Engineering
- CHE 472 Water and Wastewater Treatment Design
- CHE 473 Fundamentals of Carbon Capture and Storage Technology
- CHE 494 special topic courses in chemical engineering
- CHM 331 Physical Chemistry II
- CHM 345 Instrumental Analysis
- EGM 361 Management for Engineers
- EGM 362 Engineering Project Management

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives (minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses at or above the 100 level.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Science in Chemical Engineering (BSChE)

FIRST YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHM 101	General Chemistry I	3
	CHM 101L	General Chemistry Laboratory I	1
	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing I	3
		Total	**16**
Spring	CHE 101	Introduction to Chemical and Biological Engineering	1
	CHM 102	General Chemistry II	3
	CHM 102L	General Chemistry Laboratory II	1
	MTH 104	Calculus II	3
	NGN 112	Introduction to Artificial Intelligence and Data Science	3
	WRI 102	Academic Writing II	3
	GER-Core	History and Culture of the Arab World	3
		Total	**17**

SECOND YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHE 205	Principles of Chemical Engineering I	2
	ENG 204	Advanced Academic Writing	3
	MTH 203	Calculus III	3
	NGN 211	Introduction to Engineering Probability and Statistics	3
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
		Total	**15**
Spring	CHE 206	Principles of Chemical Engineering II	3
	CHE 214	Chemical Engineering Thermodynamics I	3
	CHE 230	Materials Science	3
	CHE 240	Computer Methods in Chemical Engineering	3
	CHM 215	Organic Chemistry I	3
	MTH 225	Differential Equations and Linear Algebra	3
		Total	**18**

THIRD YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHE 300	Fluid Mechanics	3
	CHE 304	Chemical Engineering Thermodynamics II	3
	CHE 307	Heat Transfer	3
	CHM 217	Organic Chemistry Laboratory I	1
	IEN 301	Innovation and Entrepreneurship Mindset	3
	GER-Core	Human Interaction and Behavior	3
		Total	**16**
Spring	CHE 321	Chemical Reaction Engineering	3
	CHE 329	Mass Transfer	3
	CHE 350	Chemical Engineering Laboratory I	1
	GER-Core	Arts and Literature	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**16**
Summer	NGN 397	Professional Training in Engineering and Computing	0

FOURTH YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHE 412	Separation Processes	3
	CHE 421	Chemical Process Dynamics and Control	3
	CHE 432	Process Design and Economics	3
	CHE 451	Chemical Engineering Laboratory II	1
	CHE 490	Senior Design Project I	1
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**17**
Spring	CHE 433	Chemical Process Safety	3
	CHE 452	Process Dynamics and Control Laboratory	1
	CHE 491	Senior Design Project II	2
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**15**

Bachelor of Science in Chemical and Biological Engineering (BSChBE)

The Bachelor of Science in Chemical and Biological Engineering program is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates.

Chemical and biological 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, sustainable and environmentally benign processes that are efficient and economical to operate; and they direct the design, construction and operation of new plants, ranging from pilot plants to full-scale chemical facilities.

Chemical and biological engineers are making unparalleled contributions in chemical and petrochemical processing, biological processes, oil and gas facilities, water and energy sectors, food and pharmaceutical industries, pollution control and abatement, process automation, process control and modeling, and biochemical technology.

The Department of Chemical and Biological Engineering offers a four-year program of study that prepares graduates to work in all areas of the chemical and biological 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, unit operations, biotechnology, biomedical engineering, process control, process simulation, plant design, process integration, cost estimation, pollution prevention and waste management.

Mission Statement

The mission of the chemical and biological engineering degree program at AUS is to prepare students for a technical career, to be innovative and ethically responsible, and to provide leadership in chemical and biological engineering and related disciplines.

Program Educational Objectives

The objectives of the chemical and biological engineering degree program are to produce graduates who will:

- succeed in the chemical and biological engineering profession through technical competence, effective communication, teamwork and leadership
- maintain a lifelong interest in learning for personal and professional development

- practice engineering in a manner that is ethically responsible and consistent with regulatory and social concerns

Student Outcomes

Upon graduation, an AUS graduate in chemical and biological engineering should demonstrate:

- an ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental and economic factors
- an ability to communicate effectively with a range of audiences
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks and meet objectives
- an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Admission to the Program

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

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

Degree Requirements

Students seeking the BSChBE degree must successfully complete the following minimum requirements:

- a minimum of 130 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 38 credit hours in general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 77 credit hours of major requirements, including professional training for at least eight weeks
  - a minimum of six credit hours of major electives
  - a minimum of six credit hours of free electives
- a minimum CGPA of 2.00

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 38 credit hours)

Students must successfully complete a minimum of 38 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: CHM 101, CHM 101L, PHY 101 and PHY 101L
- mathematics requirement: MTH 103 and MTH 104
- statistics requirement: satisfied through NGN 211
- communication requirement: a minimum of 9 credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses, including ENG 204
- ethical understanding requirement: satisfied through CHE 432
- discipline specific writing intensive course requirement: satisfied through CBE 491
- oral proficiency requirement: satisfied through CBE 491
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through NGN 112 and CHE 240

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (77 credit hours)

- BIO 101 General Biology I
- BIO 101L General Biology Laboratory
- BIO 210 Introduction to Human Anatomy and Physiology or CHM 350 Biochemistry
- CBE 236 Biomaterials
- CBE 384 Biochemical Engineering Principles
- CBE 414 Biological Separation Processes
- CBE 453L Bioengineering Laboratory
- CBE 483 Fundamentals of Biomedical Engineering
- CBE 490 Senior Design Project I
- CBE 491 Senior Design Project II
- CHE 101 Introduction to Chemical and Biological Engineering
- CHE 205 Principles of Chemical Engineering I
- CHE 206 Principles of Chemical Engineering II
- CHE 214 Chemical Engineering Thermodynamics I
- CHE 240 Computer Methods in Chemical Engineering
- CHE 300 Fluid Mechanics
- CHE 307 Heat Transfer
- CHE 321 Chemical Reaction Engineering
- CHE 329 Mass Transfer
- CHE 350 Chemical Engineering Laboratory I
- CHE 421 Chemical Process Dynamics and Control
- CHE 432 Process Design and Economics
- CHE 451 Chemical Engineering Laboratory II
- CHM 102 General Chemistry II
- CHM 102L General Chemistry Laboratory II
- CHM 215 Organic Chemistry I
- CHM 217 Organic Chemistry Laboratory I
- MTH 225 Differential Equations and Linear Algebra
- NGN 110 Introduction to Engineering and Computing
- NGN 112 Introduction to Artificial Intelligence and Data Science
- NGN 211 Introduction to Engineering Probability and Statistics
- NGN 397 Professional Training in Engineering and Computing
- PHY 102 General Physics II
- PHY 102L General Physics Laboratory II

Major Electives
(minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses selected from the following list:

- BIO 335 Microbiology
- CBE 441 Pharmaceutical Manufacturing
- CBE 445 Nanomaterials for Biological Applications
- CBE 446 Biotechnology for Air Pollution Control
- CBE 448 Biomass and Bioenergy
- CBE 494 special topics courses in chemical and biological engineering
- CHM 394/494 approved special topic courses in chemistry. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives
(minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses at or above the 100 level.

Proposed Sequence of Study
Bachelor of Science in Chemical and Biological Engineering (BSChBE)

FIRST YEAR (34 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHM 101	General Chemistry I	3
	CHM 101L	General Chemistry Laboratory I	1
	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing I	3
		Total	**16**
Spring	CHE 101	Introduction to Chemical and Biological Engineering	1
	CHM 102	General Chemistry II	3
	CHM 102L	General Chemistry Laboratory II	1
	MTH 104	Calculus II	3
	NGN 112	Introduction to Artificial Intelligence and Data Science	3
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	WRI 102	Academic Writing II	3
		Total	**18**

SECOND YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHE 205	Principles of Chemical Engineering I	2
	BIO 101	General Biology I	3
	BIO 101L	General Biology Laboratory I	1
	ENG 204	Advanced Academic Writing	3
	NGN 211	Introduction to Engineering Probability and Statistics	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**15**
Spring	CBE 236	Biomaterials	3
	CHE 206	Principles of Chemical Engineering II	3
	CHE 214	Chemical Engineering Thermodynamics I	3
	CHE 240	Computer Methods in Chemical Engineering	3
	CHM 215	Organic Chemistry I	3
	MTH 225	Differential Equations and Linear Algebra	3
		Total	**18**

THIRD YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHE 300	Fluid Mechanics	3
	CHE 307	Heat Transfer	3
	CHM 217	Organic Chemistry Laboratory I	1
	BIO 210 or CHM 350	Introduction to Human Anatomy and Physiology or Biochemistry	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	GER-Core	History and Culture of the Arab World	3
		Total	**16**
Spring	CBE 384	Biochemical Engineering Principles	3
	CHE 321	Chemical Reaction Engineering	3
	CHE 329	Mass Transfer	3
	CHE 350	Chemical Engineering Laboratory I	1
	GER-Core	Courses Selected from General Education Core requirements	3
	GER-Core	Human Interaction and Behavior	3
		Total	**16**
Summer	NGN 397	Professional Training in Engineering and Computing	0

FOURTH YEAR (31 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CBE 414	Biological Separation Processes	2
	CBE 483	Fundamentals of Biomedical Engineering	3
	CBE 490	Senior Design Project I	1
	CHE 421	Chemical Process Dynamics and Control	3
	CHE 432	Process Design and Economics	3
	CHE 451	Chemical Engineering Laboratory II	1
	MJE	Major Elective	3
		Total	**16**
Spring	CBE 453L	Bioengineering Laboratory	1
	CBE 491	Senior Design Project II	2
	MJE	Major Elective	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Minor in Safety and Fire Protection Engineering

Paul Nancarrow, Coordinator

The minor in safety and fire protection engineering is designed to provide engineering students with a strong foundation in safety and fire protection with a focus on improving safety in industrial facilities and buildings. The objectives of the minor are to produce graduates who will succeed in safety and fire protection engineering in governmental and industrial roles, and who will provide leadership in safety and fire protection via technical competence, ethical awareness and lifelong learning.

The minor is open to students in the chemical engineering, civil engineering, electrical engineering, industrial engineering and mechanical engineering majors.

Students enrolling in the safety and fire protection engineering minor should have normally completed a minimum of 60 credit hours and be in good academic standing.

Students seeking a minor in safety and fire protection engineering must successfully complete the following requirements:

- a minimum of 12 credit hours of minor requirements
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Students seeking a minor in safety and fire protection engineering must successfully complete the following courses or their equivalent. All course prerequisites must be satisfied.

Minor Requirements (12 credit hours)

Students must successfully complete the following courses:

- CHE 433 Chemical Process Safety (for non-chemical engineering students) or MCE 446 Refrigeration and Air Conditioning (for chemical engineering students)
- INE 450 Safety Engineering
- SFE 410 Fundamentals of Fire Protection Engineering
- SFE 420 Fire Resistance in Buildings

Department of Civil Engineering

Sameh El-Sayegh, Head

Faculty

Jamal Abdalla
Akmal Abdelfatah
Farid Abed
Mohamed AlHamaydeh
Tarig Ali
Mohammed Taher Aqeel
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Mousa Attom
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Magdi El-Emam
Rami Hawileh
Rana Khallaf
Maruf Mortula
Sami Tabsh
Sherif Yehia

Bachelor of Science in Civil Engineering (BSCE)

The Bachelor of Science in Civil Engineering program is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates.

The Bachelor of Science in Civil Engineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Program Criteria for Civil and Similarly Named Engineering Programs.

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 improve communication skills, to use computer tools, to be aware of project constraints, and to develop and maintain high standards of ethics and professionalism. The civil engineering program provides an environment conducive to learning that stimulates both students and faculty.

Mission Statement

The mission of the civil engineering degree program at AUS is to provide students with the highest level of technical preparation, social responsibility, leadership and lifelong learning skills for successful careers in civil engineering. The department offers quality education based on a nationally and internationally recognized curriculum supported by well-equipped laboratories and state-of-the-art educational tools. The department provides professional environment that fosters fairness, ethics, diversity, faculty development, quality research, and outreach with industry and public agencies.

Program Educational Objectives

The objectives of the civil engineering degree program are to produce graduates who will:

- have successful careers in civil engineering and become independent thinkers, effective communicators, team members, decision makers and leaders in industry and public sectors
- understand the global, ethical and social implications of the civil engineering profession and promote public safety and environmental protection
- pursue advanced studies successfully and engage in continuing education and lifelong learning

Student Outcomes

Upon graduation, an AUS graduate in civil engineering should demonstrate:

- an ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental and economic factors
- an ability to communicate effectively with a range of audiences
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks and meet objectives
- an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Admission to the Program

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

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

Degree Requirements

Students seeking the BSCE degree must successfully complete the following minimum requirements:

- a minimum of 130 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 38 credit hours in general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 77 credit hours of major requirements, including professional training for at least eight weeks
  - a minimum of six credit hours of major electives
  - a minimum of six credit hours of free electives
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 38 credit hours)

Students must successfully complete a minimum of 38 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: CHM 101, CHM 101L, PHY 101 and PHY 101L
- mathematics requirement: MTH 103 and MTH 104
- statistics requirement: satisfied through NGN 211
- communication requirement: a minimum of nine credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses, including ENG 204
- ethical understanding requirement: satisfied through CVE 490
- discipline specific writing intensive course requirement: satisfied through CVE 491
- oral proficiency requirement: satisfied through CVE 491
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through NGN 112

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (77 credit hours)

- CVE 111 Fundamentals of Engineering Graphics
- CVE 202 Construction Materials Laboratory
- CVE 222 Statics and Dynamics
- CVE 223 Mechanics of Materials
- CVE 224 Construction Materials and Quality Control
- CVE 232 Geology
- CVE 240 Fluid Mechanics
- CVE 243 Fundamentals of Geomatics
- CVE 263 Urban Transportation Planning
- CVE 267 Civil Engineering Economic Analysis
- CVE 301 Theory of Structures
- CVE 303 Geotechnical Engineering Laboratory
- CVE 312 Structural Steel Design
- CVE 313 Reinforced Concrete Design
- CVE 325 Numerical Methods in Engineering
- CVE 331 Geotechnical Engineering Principles
- CVE 333 Geotechnical Engineering Design
- CVE 341 Water Resources Engineering
- CVE 352 Environmental Engineering
- 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
- MTH 203 Calculus III
- MTH 225 Differential Equations and Linear Algebra
- NGN 110 Introduction to Engineering and Computing
- NGN 112 Introduction to Artificial Intelligence and Data Science
- NGN 211 Introduction to Engineering Probability and Statistics
- NGN 397 Professional Training in Engineering and Computing
- PHY 102 General Physics II
- PHY 102L General Physics Laboratory II

Major Electives (minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses selected from the following list:

- CVE 410 Computer Methods in Structural Analysis
- CVE 411 Structural Concrete Design
- CVE 414 Prestressed Concrete Design
- CVE 441 Coastal Engineering
- CVE 442 Design of Earth Retaining Structures
- CVE 446 Geotechnical Dam Engineering
- CVE 451 Urban Water Infrastructure Management
- CVE 452 Water Distribution and Wastewater Collection Systems
- CVE 456 Traffic Engineering
- CVE 460 Transportation Systems Management
- CVE 461 Public Transportation Systems
- CVE 463 Construction Management
- CVE 467 Building Construction Materials and Methods
- CVE 472 Geographic Information Systems
- CVE 478 Sustainable Concrete Design
- CVE 494 special topic courses in civil engineering
- SFE 420 Fire Resistance in Buildings

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives (minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses at or above the 100 level.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Science in Civil Engineering (BSCE)

FIRST YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHM 101	General Chemistry I	3
	CHM 101L	General Chemistry Laboratory I	1
	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing I	3
		Total	**16**
Spring	CVE 111	Fundamentals of Engineering Graphics	1
	MTH 104	Calculus II	3
	NGN 112	Introduction to Artificial Intelligence and Data Science	3
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	WRI 102	Academic Writing II	3
	GER-Core	Human Interaction and Behavior	3
		Total	**17**

SECOND YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CVE 222	Statics and Dynamics	3
	CVE 232	Geology	2
	CVE 243	Fundamentals of Geomatics	3
	ENG 204	Advanced Academic Writing	3
	MTH 225	Differential Equations and Linear Algebra	3
	NGN 211	Introduction to Engineering Probability and Statistics	3
		Total	**17**
Spring	CVE 223	Mechanics of Materials	3
	CVE 240	Fluid Mechanics	3
	CVE 263	Urban Transportation Planning	3
	CVE 267	Civil Engineering Economic Analysis	3
	MTH 203	Calculus III	3
		Total	**15**

THIRD YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CVE 202	Construction Materials Laboratory	1
	CVE 224	Construction Materials and Quality Control	3
	CVE 301	Theory of Structures	3
	CVE 303	Geotechnical Engineering Laboratory	1
	CVE 331	Geotechnical Engineering Principles	3
	CVE 341	Water Resources Engineering	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**17**
Spring	CVE 313	Reinforced Concrete Design	3
	CVE 333	Geotechnical Engineering Design	3
	CVE 363	Highway Design	3
	CVE 367	Project Estimating, Planning and Control	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
		Total	**15**
Summer	NGN 397	Professional Training in Engineering and Computing	0

FOURTH YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CVE 312	Structural Steel Design	3
	CVE 325	Numerical Methods in Engineering	3
	CVE 352	Environmental Engineering	3
	CVE 490	Civil Engineering Design Project I	1
	MJE	Major Elective	3
	GER-Core	Arts and Literature	3
		Total	**16**
Spring	CVE 491	Civil Engineering Design Project II	2
	MJE	Major Elective	3
	GER-Core	History and Culture of the Arab World	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**17**

Bachelor of Science in Digital Construction Engineering and Management (BSDCEM)

The Bachelor of Science in Digital Construction Engineering and Management program (BSDCEM) is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates.

The BSDCEM program is offered by the Department of Civil Engineering. The BSDCEM program offers the rigor of civil engineering problem-solving and design with construction management courses, coupled with knowledge of digital technology and smart systems applications. Students receive an innovative interdisciplinary education that enables them to embark on exciting careers in the new construction industry that is embracing digital technology and smart systems and tools such as building information modeling (BIM), artificial intelligence (AI) and data analytics, and new concepts like smart cities and digital twins.

Mission Statement

The mission of the BSDCEM program at AUS is to provide students with the highest level of technical preparation, social responsibility, leadership and lifelong learning skills for successful careers in the construction industry. The program offers quality education based on a nationally and internationally recognized curriculum supported by well-equipped laboratories and state-of-the-art educational tools.

Program Educational Objectives

The objectives of the BSDCEM program are to produce graduates who will:

- have successful careers in digital construction engineering and management and become independent thinkers, effective communicators, team members, decision makers and leaders in industry and public sectors
- understand the global, ethical and social implications of the digital construction engineering and management profession and promote public safety and environmental protection
- pursue advanced studies successfully and engage in continuing education and lifelong learning

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics
- apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental and economic factors
- communicate effectively with a range of audiences
- recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts
- function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- acquire and apply new knowledge as needed, using appropriate learning strategies

Admission to the Program

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

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

Degree Requirements

Students seeking the BSDCEM degree must successfully complete the following minimum requirements:

- a minimum of 130 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 38 credit hours in general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 74 credit hours of major requirements, including professional training for at least eight weeks
  - a minimum of nine credit hours of major electives
  - a minimum of six credit hours of free electives
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 38 Credit hours)

Students must successfully complete a minimum of 38 credit hours as follows:

- A minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: CHM 101, CHM 101L, PHY 101 and PHY101L
- mathematics requirement: MTH 103 and MTH 104
- statistics requirement: satisfied through NGN 211
- communication requirement: a minimum of nine credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses, including ENG 204
- ethical understanding requirement: satisfied through CEM 490
- discipline specific writing intensive course requirement: satisfied through CEM 491
- oral proficiency requirement: satisfied through CEM 491
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through NGN 112

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (74 credit hours)

- CEM 200 Introduction to Digital Construction
- CEM 201 Building Information Modeling I Laboratory
- CEM 250 Sustainable Construction and Automation
- CEM 251 Building Information Modeling II Laboratory
- CEM 300 Digital Construction Management
- CEM 301 Building Information Modeling III Laboratory
- CEM 325 Geotechnical Engineering
- CEM 350 Management Systems for Construction
- CEM 360 Construction Law in the Digital Age
- CEM 490 Senior Design Project I
- CEM 491 Senior Design Project II
- CVE 111 Fundamentals of Engineering Graphics
- CVE 202 Construction Materials Laboratory
- CVE 222 Statics and Dynamics
- CVE 223 Mechanics of Materials
- CVE 224 Construction Materials and Quality Control
- CVE 240 Fluid Mechanics
- CVE 243 Fundamentals of Geomatics
- CVE 267 Civil Engineering Economic Analysis
- CVE 301 Theory of Structures
- CVE 313 Reinforced Concrete Design
- CVE 325 Numerical Methods in Engineering
- CVE 367 Project Estimating, Planning and Control
- MTH 203 Calculus III

- MTH 225 Differential Equations and Linear Algebra
- NGN 110 Introduction to Engineering and Computing.
- NGN 112 Introduction to Artificial Intelligence and Data Science
- NGN 211 Introduction to Engineering Probability and Statistics
- NGN 397 Professional Training in Engineering and Computing
- PHY 102 General Physics II
- PHY 102L General Physics Laboratory II

Major Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following lists (Pool 1 and Pool 2), with at least six credit hours from Pool 1:

Pool 1

- CEM 410 Additive Manufacturing in Construction
- CEM 415 Transportation Systems
- CEM 420 Smart Urban Mobility
- CEM 430 Smart Civil Infrastructure
- CEM 440 Construction Safety
- CEM 450 Foundation and Retaining Systems
- CEM 494 special topic courses in DCEM

Pool 2

- CVE 312 Structural Steel Design
- CVE 341 Water Resources Engineering
- CVE 352 Environmental Engineering
- CVE 472 Geographic Information Systems

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives (6 credit hours)

Students must successfully complete a minimum of six credit hours in courses at or above the 100 level.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement

Proposed Sequence of Study
Bachelor of Science in Digital Construction Engineering and Management (BSDCEM)

FIRST YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHM 101	General Chemistry I	3
	CHM 101L	General Chemistry Laboratory I	1
	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing I	3
		Total	**16**
Spring	CVE 111	Fundamentals of Engineering Graphics	1
	MTH 104	Calculus II	3
	NGN 112	Introduction to Artificial Intelligence and Data Science	3
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	WRI 102	Academic Writing II	3
	GER-Core	Human Interaction and Behavior	3
		Total	**17**

SECOND YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CEM 200	Introduction to Digital Construction	3
	CEM 201	Building Information Modeling I Laboratory	1
	CVE 222	Statics and Dynamics	3
	CVE 243	Fundamentals of Geomatics	3
	MTH 203	Calculus III	3
	NGN 211	Introduction to Engineering Probability and Statistics	3
		Total	**16**
Spring	CEM 250	Sustainable Construction and Automation	3
	CEM 251	Building Information Modeling II Laboratory	1
	CVE 223	Mechanics of Materials	3
	CVE 240	Fluid Mechanics	3
	CVE 267	Civil Engineering Economic Analysis	3
	ENG 204	Advanced Academic Writing	3
		Total	**16**

THIRD YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CVE 202	Construction Materials Laboratory	1
	CVE 224	Construction Materials and Quality Control	3
	CVE 301	Theory of Structures	3
	CVE 367	Project Estimating, Planning and Control	3
	MTH 225	Differential Equations and Linear Algebra	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**16**
Spring	CEM 300	Digital Construction Management	3
	CEM 301	Building Information Modeling III Laboratory	1
	CEM 325	Geotechnical Engineering	3
	CVE 313	Reinforced Concrete Design	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	GER-Core	History and Culture of the Arab World	3
		Total	**16**
Summer	NGN 397	Professional Training in Engineering and Computing	0

FOURTH YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CEM 350	Management Systems for Construction	3
	CEM 490	Senior Design Project I	1
	CVE 325	Numerical Methods in Engineering	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Arts and Literature	3
		Total	**16**
Spring	CEM 360	Construction Law in the Digital Age	3
	CEM 491	Senior Design Project II	2
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**17**

Department of Computer Science and Engineering

Imran Zualkernan, Head

Faculty

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Raafat Aburukba
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Mohamed Hassan
Dana Hussein
Mohamed Ibrahim
Taha Landolsi
Khaldoon Mhaidat
Aliaa Moualla
Samer Nofal
Michel Pasquier
Cheng Peng
Assim Sagahyroon
Tamer Shanableh

Bachelor of Science in Computer Engineering (BSCoE)

The Bachelor of Science in Computer Engineering program is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates.

The Bachelor of Science in Computer Engineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s) and Similarly Named Engineering Programs.

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, software engineering and artificial intelligence. 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, an innovation and entrepreneurship requirement and major requirements for all computer engineering students. In addition, technical and free elective courses must be completed. Professional training experience is required, as is a senior design project accomplished over a two-semester period.

Required laboratory courses provide hands-on experience and support class work and the senior project. The laboratories are equipped with state-of-the-art hardware, software and networking equipment.

Mission Statement

The mission of the computer engineering program at AUS is to educate students in the principles and modern practices of computer engineering, to prepare students to pursue a wide range of computer engineering careers, and to generate new knowledge by the pursuit of research in selected areas of computer engineering.

Program Educational Objectives

The objectives of the computer engineering program are to produce graduates who will:

- have successful careers as computer engineers, and become effective communicators, team members and leaders in industry and public sectors
- continue their professional development through continuing education and advanced studies
- be engaged in the global, ethical and social aspects of the profession and have a positive impact on local, regional and global communities

Student Outcomes

Upon graduation, an AUS graduate in computer engineering should demonstrate:

- an ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental and economic factors
- an ability to communicate effectively with a range of audiences
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks and meet objectives
- an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Admission to the Program

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

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

Degree Requirements

Students seeking the BSCoE degree must successfully complete the following minimum requirements:

- a minimum of 130 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 38 credit hours in general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 71 credit hours of major requirements, including professional training for at least eight weeks
  - a minimum of 12 credit hours of major electives
  - a minimum of six credit hours of free electives
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six

credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 38 credit hours)

Students must successfully complete a minimum of 38 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: CHM 101, CHM 101L, PHY 101 and PHY 101L
- mathematics requirement: MTH 103 and MTH 104
- statistics requirement: satisfied through NGN 211
- communication requirement: a minimum of nine credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses, including ENG 204
- ethical understanding requirement: satisfied through COE 490
- discipline specific writing intensive course requirement: satisfied through COE 491
- oral proficiency requirement: satisfied through COE 491
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through CMP 120

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (71 credit hours)

- CMP 120 Programming I
- CMP 220 Programming II
- CMP 305 Data Structures and Algorithms
- CMP 310 Operating Systems
- COE 221 Digital Systems
- COE 241 Microcontrollers: Programming and Interfacing
- COE 341 Computer Architecture and Organization
- COE 371 Computer Networks
- COE 411 Embedded and Cyber Physical Systems
- COE 421L Computer Systems Engineering Laboratory
- COE 424 Advanced Digital System Design
- COE 490 Design Project I
- COE 491 Design Project II
- ELE 211 Electric Circuits I
- ELE 241 Electronics I
- ELE 241L Electronics I Laboratory
- ELE 320 Signal Processing and Communications
- ELE 340 Digital Electronics
- MTH 205 Differential Equations
- MTH 213 Discrete Mathematics
- MTH 221 Linear Algebra
- NGN 110 Introduction to Engineering and Computing
- NGN 112 Introduction to Artificial Intelligence and Data Science
- NGN 211 Introduction to Engineering Probability and Statistics
- NGN 397 Professional Training in Engineering and Computing
- PHY 102 General Physics II
- PHY 102L General Physics Laboratory II

Major Electives (minimum of 12 credit hours)

Students must successfully complete a minimum of six credit hours in courses selected from the following list of core elective courses:

- COE 312 Software Design for Engineers
- COE 375 Modeling and Simulation of Stochastic Systems
- COE 394/494 approved special topic courses in computer engineering. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- COE 414 Telecommunications Networks Engineering
- COE 425 Modern Computer Organizations
- COE 428 VLSI Design
- COE 431 Industrial Cyber Physical Systems
- COE 434 Wireless and Mobile Networks
- COE 457 Internet and Internet of Things (IoT) Programming
- COE 487 Virtual and Augmented Reality

Students must successfully complete a maximum of six credit hours in courses selected from the following list of breadth elective courses:

- CMP 320 Database Systems
- CMP 333 Artificial Intelligence
- CMP 357 Web Development and Programming
- CMP 394/494 approved special topic courses in Computer Science. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- CMP 404 Cloud Computing
- CMP 416 Internet and Network Computing
- CMP 418 Multicore Computing
- CMP 430 Computer Graphics
- CMP 445 Software Requirements Engineering
- CMP 450 Object-Oriented Software Engineering
- CMP 456 Software Testing
- CMP 461 Intelligent Autonomous Robotics
- CMP 466 Machine Learning and Data Mining
- CMP 469 Intelligent Recommendation Systems
- COE 420 Software Engineering
- COE 444 Computer Security
- COE 476 Neural Networks and Deep Learning
- COE 486 Computer Vision
- ELE 311 Electromagnetics
- ELE 432 Medical Instrumentation I
- ELE 441 Microelectronic Devices

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives (minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses at or above the 100 level, excluding BIS 101.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Science in Computer Engineering (BSCoE)

FIRST YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	NGN 112	Introduction to Artificial Intelligence and Data Science	3
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing I	3
		Total	**15**
Spring	CHM 101	General Chemistry I	3
	CHM 101L	General Chemistry Laboratory I	1
	MTH 104	Calculus II	3
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	WRI 102	Academic Writing II	3
	GER-Core	History and Culture of the Arab World	3
		Total	**17**
SECOND YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CMP 120	Programming I	3
	COE 221	Digital Systems	4
	ELE 211	Electric Circuits I	3
	MTH 205	Differential Equations	3
	MTH 213	Discrete Mathematics	3
		Total	**16**
Spring	CMP 220	Programming II	3
	COE 241	Microcontrollers: Programming and Interfacing	4
	ELE 241	Electronics I	3
	ELE 241L	Electronics I Laboratory	1
	ENG 204	Advanced Academic Writing	3
	NGN 211	Introduction to Engineering Probability and Statistics	3
		Total	**17**

THIRD YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CMP 305	Data Structures and Algorithms	3
	COE 341	Computer Architecture and Organization	3
	ELE 320	Signal Processing and Communications	3
	MTH 221	Linear Algebra	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
		Total	**18**
Spring	CMP 310	Operating Systems	3
	COE 371	Computer Networks	3
	ELE 340	Digital Electronics	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	GER-Core	Arts and Literature	3
		Total	**15**
Summer	NGN 397	Professional Training in Engineering and Computing	0
FOURTH YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	COE 411	Embedded and Cyber Physical Systems	4
	COE 421L	Computer Systems Engineering Laboratory	1
	COE 490	Design Project I	1
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**15**
Spring	COE 424	Advanced Digital System Design	3
	COE 491	Design Project II	2
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**17**

Bachelor of Science in Computer Science (BSCS)

The Bachelor of Science in Computer Science program is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates.

The Bachelor of Science in Computer Science program is accredited by the Computing Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and Program Criteria for Computer Science and Similarly Named Computing Programs.

The program is designed to meet the growing needs for computer science experts in the rapidly evolving 21st century economy. It provides graduates with a strong computer science base that will enable them to capitalize on increasing career opportunities in the computer science and technology sector, especially in software-related fields, including artificial intelligence and software engineering; to expand the limits of their knowledge by pursuing further graduate studies; and to explore innovative approaches to computer-related problems. A computer science degree from AUS provides the graduate with a highly demanded level of expertise, great mobility and flexibility, and a wide range of career choices in the broad software and information technology industry.

The program includes general education requirements, an innovation and entrepreneurship requirement and major requirements. In addition, technical and free elective courses are required. A senior design project is also completed in close coordination with a faculty advisor over a two-course sequence. A summer professional training experience is required.

Mission Statement

The mission of the computer science program at AUS is to deliver a modern curriculum that will equip graduates with strong theoretical and practical backgrounds to enable them to excel in the workplace and to be lifelong learners.

Program Educational Objectives

The objectives of the computer science program are to produce graduates who will:

- have successful careers in the field of computer science
- excel in roles that require leadership qualities and effective communication skills while contributing value to employers and organizations at both regional and global levels
- stay current in emerging technologies through training, self-learning and/or graduate studies
- be engaged in the ethical, legal and social issues faced in their workplace and contribute positively to the community

Student Outcomes

Bachelor of Science in Computer Science

Upon graduation, an AUS graduate in computer science should demonstrate an ability to:

- analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions
- design, implement and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline
- communicate effectively in a variety of professional contexts
- recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles
- function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline
- apply computer science theory and software development fundamentals to produce computing-based solutions

Concentration in Artificial Intelligence and Machine Learning (AIML)

Upon completion of this concentration, BSCS students should be able to:

- employ mathematical methods such as probability, statistics, calculus, discrete structures and linear algebra, to analyze AI models and learning techniques
- formulate problems such that they can be solved by using AI techniques, including heuristic search, constraint satisfaction, logical reasoning and planning
- select and apply an appropriate supervised or unsupervised learning algorithm for problems including classification, regression, clustering and representation learning
- utilize modern AI tools and computational techniques to solve real-world problems

Concentration in Software Engineering (SE)

Upon completion of this concentration, BSCS students should be able to:

- apply software engineering principles to design, develop, and manage software systems
- utilize software engineering techniques to model, design, and implement software solutions
- implement software testing and quality assurance strategies to detect, prevent, and mitigate software defects and ensure reliability and security
- deploy software applications for various platforms, including mobile, desktop, web and cloud, using modern development tools

Admission to the Program

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

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

Degree Requirements

Students in the BSCS degree program may select to pursue:

- a concentration in either AIML or SE
- a double concentration in AIML and SE
- a no-concentration option (general BSCS option)

Students seeking the BSCS degree with the one-concentration option or with the general BSCS option must successfully complete the following minimum graduation requirements:

- a minimum of 122 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 39 credit hours in general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 62 credit hours of major requirements, including professional training for at least eight weeks
  - a minimum of 12 credit hours of major electives for students in the general BSCS option, or a minimum of 15 credit hours in concentration required and elective courses for students in the one concentration option
  - a minimum of six credit hours of free electives for students in the general BSCS option, or a minimum of three credit hours for students in the one-concentration option
- a minimum CGPA of 2.00

Students seeking the BSCS degree with a double concentration in AIML and SE must successfully complete the degree program graduation requirements for the first concentration in addition to meeting the requirements of the second concentration. For details, refer to Double Concentration in AIML and SE later in this program section.

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 39 credit hours)

Students must successfully complete a minimum of 39 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: a minimum of 12 credit hours from CHM, BIO or PHY. Two out of the three courses must be in the same area.
- mathematics requirement: MTH 103
- statistics requirement: NGN 211
- communication requirement: a minimum of nine credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses, including ENG 204
- ethical understanding requirement: satisfied through CMP 490
- discipline specific writing intensive course requirement: satisfied through CMP 490
- oral proficiency requirement: satisfied through CMP 490
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through CMP 120

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (62 credit hours)

- CMP 120 Programming I
- CMP 213 Discrete Structures
- CMP 220 Programming II

- CMP 305 Data Structures and Algorithms
- CMP 310 Operating Systems
- CMP 321 Programming Languages
- CMP 333 Artificial Intelligence
- CMP 340 Design and Analysis of Algorithms
- CMP 357 Web Development and Programming
- CMP 358L Java Programming Laboratory
- CMP 490 Project in Computer Science I
- CMP 491 Project in Computer Science II
- COE 221 Digital Systems
- COE 251 Introduction to Computer Systems
- COE 371 Computer Networks
- COE 420 Software Engineering
- MTH 104 Calculus II
- MTH 221 Linear Algebra
- MTH 343 Numerical Analysis I
- NGN 110 Introduction to Engineering and Computing
- NGN 112 Introduction to Artificial Intelligence and Data Science
- NGN 211 Introduction to Engineering Probability and Statistics
- NGN 397 Professional Training in Engineering and Computing

Major Electives for the General BSCS option (minimum of 12 credit hours)

Students must successfully complete a minimum of six credit hours in courses selected from the following list of core elective courses:

- CMP 320 Database Systems
- CMP 394/494 approved special topic courses in computer science. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- CMP 404 Cloud Computing
- CMP 416 Internet and Network Computing
- CMP 418 Multicore Computing
- CMP 430 Computer Graphics
- CMP 445 Software Requirements Engineering• CMP 450 Object-oriented Software Engineering
- CMP 456 Software Testing
- CMP 461 Intelligent Autonomous Robotics
- CMP 466 Machine Learning and Data Mining
- CMP 469 Intelligent Recommendation Systems
- COE 444 Computer Security
- COE 476 Neural Networks and Deep Learning

Students must successfully complete a maximum of six credit hours in courses selected from the following list of breadth elective courses:

- COE 312 Software Design for Engineers
- COE 341 Computer Architecture and Organization
- COE 375 Modeling and Simulation of Stochastic Systems
- COE 394/494 approved special topic courses in computer engineering. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- COE 414 Telecommunications Networks Engineering
- COE 434 Wireless and Mobile Networks
- COE 457 Internet and Internet of Things (IoT) Programming
- COE 486 Computer Vision
- COE 487 Virtual and Augmented Reality

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Concentration in AIML (minimum of 15 credit hours)

Concentration Requirements (9 credit hours)

In addition to the CMP 333 (Artificial Intelligence) major requirement that provides grounding for the AIML concentration, students in the AIML concentration must successfully complete the following three courses:

- CMP 466 Machine Learning and Data Mining
- COE 476 Neural Networks and Deep Learning
- COE 486 Computer Vision

Concentration Electives (minimum of 6 credit hours)

Students must successfully complete a minimum of two courses for a minimum of six credit hours from the following:

- CMP 456 Software Testing
- CMP 461 Intelligent Autonomous Robotics
- CMP 469 Intelligent Recommendation Systems
- CMP/COE 494 approved special topic courses in AI and Machine Learning. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the concentration electives requirement.

Concentration in SE (minimum of 15 credit hours)

Concentration Requirements (9 credit hours)

In addition to the COE 420 (Software Engineering) major requirement that provides grounding for the SE concentration, students in the SE concentration must successfully complete the following three courses:

- CMP 445 Software Requirements Engineering
- CMP 450 Object-Oriented Software Engineering
- CMP 456 Software Testing

Concentration Electives (minimum of 6 credit hours)

Students must successfully complete a minimum of two courses for a minimum of six credit hours from the following:

- CMP 320 Database systems
- CMP 404 Cloud Computing
- COE 444 Computer Security
- COE 457 Internet and Internet of Things (IoT) Programming
- CMP/COE 494 approved special topic courses in Software Engineering. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the concentration electives requirement.

Double Concentration in AIML and SE

Students selecting to complete a double concentration in AIML and SE must fulfill the requirements of both concentrations, as detailed in the previous concentration-specific sections.

Courses used to fulfill the requirements of the first concentration may double count towards the second concentration.

Once the degree requirements are met, any shortage in credit hours may be fulfilled by free electives.

Double-concentration students generally require more than 122 credit hours to meet graduation requirements.

Because the second concentration is not a degree program requirement, it is considered the student's free choice. As such, courses used towards the second

concentration may double count as free electives.

Free Electives
(minimum of 6 credit hours)

Students pursuing the general BSCS option must successfully complete a minimum of six credit hours in courses at or above the 100 level, excluding BIS 101.

Students pursuing an AIML or an SE concentration are required to complete three credit hours in free electives, with their choice of a concentration constituting a free choice for additional electives over and above the major electives graduation requirement.

Students pursuing two concentrations meet the minimum of six credit hours in free electives through their selection of a second concentration.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Science Degree in Computer Science (BSCS)
General BSCS Option

FIRST YEAR (31 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	NGN 112	Introduction to Artificial Intelligence and Data Science	3
	WRI 101	Academic Writing I	3
	GER-SCI	Natural Sciences	4
		Total	**15**
Spring	CMP 120	Programming I	3
	MTH 104	Calculus II	3
	WRI 102	Academic Writing II	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural Sciences	4
		Total	**16**
SECOND YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CMP 213	Discrete Structures	3
	CMP 220	Programming II	3
	COE 221	Digital Systems	4
	ENG 204	Advanced Academic Writing	3
	MTH 221	Linear Algebra	3
		Total	**16**
Spring	COE 251	Introduction to Computer Systems	4
	CMP 305	Data Structures and Algorithms	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	NGN 211	Introduction to Engineering Probability and Statistics	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**16**

THIRD YEAR (29 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CMP 321	Programming Languages	3
	CMP 340	Design and Analysis of Algorithms	3
	CMP 357	Web Development and Programming	3
	CMP 358L	Java Programming Laboratory	1
	GER-SCI	Natural Sciences	4
		Total	**14**
Spring	CMP 310	Operating Systems	3
	CMP 333	Artificial Intelligence	3
	COE 371	Computer Networks	3
	MTH 343	Numerical Analysis I	3
	GER-Core	Arts and Literature	3
		Total	**15**
Summer	NGN 397	Professional Training in Engineering and Computing	0
FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CMP 490	Project in Computer Science I	1
	COE 420	Software Engineering	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**16**
Spring	CMP 491	Project in Computer Science II	2
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**14**

Proposed Sequence of Study
Bachelor of Science Degree in Computer Science (BSCS)
with a concentration in AIML

FIRST YEAR (31 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	NGN 112	Introduction to Artificial Intelligence and Data Science	3
	WRI 101	Academic Writing I	3
	GER-SCI	Natural Sciences	4
		Total	**15**
Spring	CMP 120	Programming I	3
	MTH 104	Calculus II	3
	WRI 102	Academic Writing II	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural Sciences	4
		Total	**16**
SECOND YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CMP 213	Discrete Structures	3
	CMP 220	Programming II	3
	COE 221	Digital Systems	4
	ENG 204	Advanced Academic Writing	3
	MTH 221	Linear Algebra	3
		Total	**16**
Spring	COE 251	Introduction to Computer Systems	4
	CMP 305	Data Structures and Algorithms	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	NGN 211	Introduction to Engineering Probability and Statistics	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**16**

THIRD YEAR (29 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CMP 321	Programming Languages	3
	CMP 340	Design and Analysis of Algorithms	3
	CMP 357	Web Development and Programming	3
	CMP 358L	Java Programming Laboratory	1
	GER-SCI	Natural Sciences	4
		Total	**14**
Spring	CMP 310	Operating Systems	3
	CMP 333	Artificial Intelligence	3
	COE 371	Computer Networks	3
	MTH 343	Numerical Analysis I	3
	GER-Core	Arts and Literature	3
		Total	**15**
Summer	NGN 397	Professional Training in Engineering and Computing	0
FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CMP 490	Project in Computer Science I	1
	COE 420	Software Engineering	3
	CMP 466	Machine Learning	3
	COE 476	Neural Networks and Deep Learning	3
	CNE	Concentration Elective	3
	FRE	Free Elective	3
		Total	**16**
Spring	CMP 491	Project in Computer Science II	2
	COE 486	Computer Vision	3
	CNE	Concentration Elective	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**14**

Proposed Sequence of Study
Bachelor of Science Degree in Computer Science (BSCS)
with a concentration in SE

FIRST YEAR (31 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	NGN 112	Introduction to Artificial Intelligence and Data Science	3
	WRI 101	Academic Writing I	3
	GER-SCI	Natural Sciences	4
		Total	**15**
Spring	CMP 120	Programming I	3
	MTH 104	Calculus II	3
	WRI 102	Academic Writing II	3
	GER-Core	History and Culture of the Arab World	3
	GER-SCI	Natural Sciences	4
		Total	**16**
SECOND YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CMP 213	Discrete Structures	3
	CMP 220	Programming II	3
	COE 221	Digital Systems	4
	ENG 204	Advanced Academic Writing	3
	MTH 221	Linear Algebra	3
		Total	**16**
Spring	COE 251	Introduction to Computer Systems	4
	CMP 305	Data Structures and Algorithms	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	NGN 211	Introduction to Engineering Probability and Statistics	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**16**

THIRD YEAR (29 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CMP 321	Programming Languages	3
	CMP 340	Design and Analysis of Algorithms	3
	CMP 357	Web Development and Programming	3
	CMP 358L	Java Programming Laboratory	1
	GER-SCI	Natural Sciences	4
		Total	**14**
Spring	CMP 310	Operating Systems	3
	CMP 333	Artificial Intelligence	3
	COE 371	Computer Networks	3
	MTH 343	Numerical Analysis I	3
	GER-Core	Arts and Literature	3
		Total	**15**
Summer	NGN 397	Professional Training in Engineering and Computing	0
FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CMP 490	Project in Computer Science I	1
	COE 420	Software Engineering	3
	COE 445	Software Requirement Engineering	3
	COE 450	Object-Oriented Software Engineering	3
	CNE	Concentration Elective	3
	FRE	Free Elective	3
		Total	**16**
Spring	CMP 491	Project in Computer Science II	2
	CMP 456	Software Testing	3
	CNE	Concentration Elective	3
	GER-Core	Human Interaction and Behavior	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**14**

Minor in Computer Engineering

Students enrolling in the computer engineering minor should have completed a minimum of 60 credit hours of course work and be in good academic standing.

Students seeking a minor in computer engineering must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - a minimum of six credit hours of minor requirements
  - a maximum of six credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(6 to 9 credit hours)

Students must successfully complete a minimum of six credit hours from the following courses:

- COE 341 Computer Architecture and Organization
- COE 424 Advanced Digital System Design
- COE 434 Wireless and Mobile Networks

Minor Electives
(3 to 6 credit hours)

Students must successfully complete a maximum of six credit hours from the following courses:

- COE 371 Computer Networks
- COE 425 Modern Computer Organizations
- COE 444 Computer Security
- COE 457 Internet and Internet of Things (IoT) Programming
- COE 476 Neural Networks and Deep Learning

- COE 487 Virtual and Augmented Reality
- any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in Computer Science

Students enrolling in the computer science minor should have normally completed a minimum of 60 credit hours of course work and be in good academic standing.

Students seeking a minor in computer science must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - a minimum of six credit hours of minor requirements for computer engineering students; nine credit hours of minor requirements for non-computer engineering students
  - a maximum of six credit hours of minor electives for computer engineering students; three credit hours of minor electives for non-computer engineering students
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(6 to 9 credit hours)

- Computer engineering students must successfully complete a minimum of two courses (six credit hours) of the following:
  - CMP 333 Artificial Intelligence
  - CMP 340 Design and Analysis of Algorithms
  - CMP 357 Web Development and Programming
- Non-computer engineering students must successfully complete the following courses:
  - CMP 220 Programming II
  - CMP 305 Data Structures and Algorithms
  - CMP 357 Web Development and Programming

Minor Electives
(3 to 6 credit hours)

- Computer engineering students must successfully complete a maximum of two courses (six credit hours) out of the following list:
  - CMP 320 Database Systems
  - CMP 321 Programming Languages
  - CMP 404 Cloud Computing
  - CMP 418 Multicore Computing
  - CMP 430 Computer Graphics
  - CMP 445 Software Requirements Engineering
  - CMP 450 Object-Oriented Software Engineering
  - CMP 456 Software Testing
  - CMP 461 Intelligent Autonomous Robotics
  - CMP 466 Machine Learning and Data Mining
  - CMP 469 Intelligent Recommendation Systems
  - any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications
- Non-computer engineering students must successfully complete one of the following courses:
  - CMP 320 Database Systems
  - CMP 321 Programming Languages
  - CMP 333 Artificial Intelligence
  - CMP 340 Design and Analysis
  - CMP 430 Computer Graphics
  - CMP 445 Software Requirements Engineering
  - CMP 450 Object-Oriented Software Engineering
  - CMP 456 Software Testing
  - CMP 461 Intelligent Autonomous Robotics
  - CMP 466 Machine Learning and Data Mining
  - CMP 469 Intelligent Recommendation Systems
  - any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications

Department of Electrical Engineering

Ahmed Osman-Ahmed, Head

Faculty

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Bachelor of Science in Electrical Engineering (BSEE)

The Bachelor of Science in Electrical Engineering program is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates.

The Bachelor of Science in Electrical Engineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s) and Similarly Named Engineering Programs.

The electrical engineering curriculum is a four-year program leading to a Bachelor of Science in Electrical Engineering (BSEE). The program is based on a solid foundation of science and mathematics needed to understand advanced engineering topics and applications such as computer systems, electronics, telecommunications, artificial intelligence, electric vehicles, photovoltaic energy systems, wind turbines, robotics, unmanned aerial vehicles, biomedical engineering, satellite systems and Internet of Things. The curriculum is designed with the aim of providing breadth and depth of knowledge and significant design experience across the key areas of electrical engineering that evolve with society's needs. The Department of Electrical Engineering provides access to state-of-the-art resources in communications, drones, electric vehicles, control and instrumentation, digital signal processing, renewable energy, microelectronics, control programming,

electromagnetics and microwaves, electric drives, power systems, biomedical electronics, robotics, satellite systems, multilayer PCB manufacturing and product design, and more.

Faculty members are committed to helping students develop the intellectual, technological and personal skills that allow them to excel in both academia and electrical engineering careers, such as controls engineering, electronics engineering, robotics and drones engineering, electrical engineering, communications engineering, systems engineering, aeronautical engineering and satellite engineering.

Mission Statement

The mission of the electrical engineering program at AUS is to promote and maintain excellence in teaching and learning to equip students with strong core competencies in electrical engineering and empower them with the skills required for successful professional careers. The electrical engineering program promotes and enhances faculty expertise in research and development towards providing technical solutions for social challenges and community advancement through outreach activities and networking with regional and international organizations.

Program Educational Objectives

The objectives of the electrical engineering program are to produce graduates who will:

- be a successful engineer as a member or a leader of a team that comprises a diverse group of professionals
- possess effective communication skills and continue to improve technical and non-technical competencies through engagement in professional activities, projects and/or graduate studies
- be a holistic citizen demonstrating social, ethical and professional responsibilities

Student Outcomes

Upon graduation, an AUS graduate in electrical engineering should demonstrate:

- an ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental and economic factors
- an ability to communicate effectively with a range of audiences
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks and meet objectives
- an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Admission to the Program

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

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

Degree Requirements

Students seeking the BSEE degree must successfully complete the following minimum requirements:

- a minimum of 130 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 38 credit hours in general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 71 credit hours of major requirements, including professional training for at least eight weeks
  - a minimum of 12 credit hours of major electives
  - a minimum of six credit hours of free electives
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 38 credit hours)

Students must successfully complete a minimum of 38 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: PHY 101 and PHY 101L; CHM 101 and CHM 101L, or BIO 101 and BIO 101L
- mathematics requirement: MTH 103 and MTH 104
- statistics requirement: satisfied through NGN 211
- communication requirement: a minimum of nine credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses, including ENG 204
- ethical understanding requirement: satisfied through ELE 490
- discipline specific writing intensive course requirement: satisfied through ELE 491
- oral proficiency requirement: satisfied through ELE 491
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through NGN 112

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (71 credit hours)

- CMP 120 Programming I
- COE 221 Digital Systems
- COE 242 Microcontrollers and Embedded Systems
- ELE 101 Introduction to Electrical Engineering
- ELE 211 Electric Circuits I
- ELE 212 Electric Circuits II
- ELE 241 Electronics I
- ELE 311 Electromagnetics
- ELE 321 Signals and Systems

- ELE 332L Measurements and Instrumentation Laboratory
- ELE 341 Electronics II
- ELE 342L Analog Electronics Laboratory
- ELE 352 Electric Machines
- ELE 353 Control Systems I
- ELE 353L Control Systems I Laboratory
- ELE 360 Probability and Stochastic Processes
- ELE 361 Communications
- ELE 361L Communications Laboratory
- ELE 371 Power Systems Analysis
- ELE 372L Electric Machines and Power Systems Laboratory
- ELE 490 Electrical Engineering Design Project I
- ELE 491 Electrical Engineering Design Project II
- MTH 203 Calculus III
- MTH 225 Differential Equations and Linear Algebra
- NGN 110 Introduction to Engineering and Computing
- NGN 112 Introduction to Artificial Intelligence and Data Science
- NGN 211 Introduction to Engineering Probability and Statistics
- NGN 397 Professional Training in Engineering and Computing
- PHY 102 General Physics II
- PHY 102L General Physics Laboratory II

Major Electives
(minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours in courses selected from the following list of approved major electives. Students may choose to complete one course from the non-ELE courses on the list.

- BME 410 Biomedical Systems Modeling I
  or
  CBE 483 Fundamentals of Biomedical Engineering
- COE 371 Computer Networks
- COE 411 Embedded and Cyber Physical Systems
- COE 428 VLSI Design
- ELE 324 Digital Signal Processing
- ELE 432 Medical Instrumentation
- ELE 440 Radio Transceivers Design and Analysis
- ELE 441 Microelectronic Devices
- ELE 444 Control Systems II
- ELE 451 Wireless Communications
- ELE 452 Digital Communications
- ELE 453 Microwave Engineering
- ELE 454 Antennas and Wave Propagation
- ELE 456 Pattern Recognition
- ELE 457 Satellite Communications
- ELE 458 Multimedia Communications and Networking
- ELE 459 Introduction to Radar Systems
- ELE 460 Deep Networks in Machine Learning
- ELE 470 Autonomous Robotic Systems
- ELE 471 Digital Control Systems
- ELE 481 Power System Protection
- ELE 482 Electric Power Distribution Systems
- ELE 483 Utilization of Electrical Energy
- ELE 485 Power Electronics
- ELE 486 Electric Drives
- ELE 487 Power Conversion in Renewable Energy Systems
- ELE 494 special topic courses in electrical engineering
- MCE 451 Renewable Energy Systems
- MCE 464 Introduction to Robotics

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives
(minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses at or above the 100 level.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Science in Electrical Engineering (BSEE)

FIRST YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHM 101 or BIO 101	General Chemistry I or General Biology I	3
	CHM 101L or BIO 101L	General Chemistry Laboratory I or General Biology Laboratory I	1
	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing I	3
		Total	**16**
Spring	ELE 101	Introduction to Electrical Engineering	1
	MTH 104	Calculus II	3
	NGN 112	Introduction to Artificial Intelligence and Data Science	3
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	WRI 102	Academic Writing II	3
	GER-Core	History and Culture of the Arab World	3
		Total	**17**

SECOND YEAR (34 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CMP 120	Programming I	3
	ELE 211	Electric Circuits I	3
	MTH 203	Calculus III	3
	MTH 225	Differential Equations and Linear Algebra	3
	NGN 211	Introduction to Engineering Probability and Statistics	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**18**
Spring	COE 221	Digital Systems	4
	ELE 212	Electric Circuits II	3
	ELE 241	Electronics I	3
	ELE 311	Electromagnetics	3
	ENG 204	Advanced Academic Writing	3
		Total	**16**

THIRD YEAR (31 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ELE 321	Signals and Systems	3
	ELE 341	Electronics II	3
	ELE342L	Analog Electronics Laboratory	1
	ELE 352	Electric Machines	3
	ELE 353	Control Systems I	3
	ELE 360	Probability and Stochastic Processes	3
		Total	**16**
Spring	COE 242	Microcontrollers and Embedded Systems	4
	ELE 353L	Control Systems I Laboratory	1
	ELE 361	Communications	3
	ELE 371	Power Systems Analysis	3
	ELE 372L	Electric Machines and Power Systems Laboratory	1
	IEN 301	Innovation and Entrepreneurship Mindset	3
		Total	**15**
Summer	NGN 397	Professional Training in Engineering and Computing	0

FOURTH YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ELE 332L	Measurements and Instrumentation Laboratory	1
	ELE 361L	Communications Laboratory	1
	ELE 490	Electrical Engineering Design Project I	1
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Arts and Literature	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Spring	ELE 491	Electrical Engineering Design Project II	2
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**17**

Bachelor of Science in Intelligent Systems and Mechatronics Engineering (BSISME)

The Bachelor of Science in Intelligent Systems and Mechatronics Engineering (BSISME) program is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates.

Intelligent systems and mechatronics engineering is a multidisciplinary discipline merging resources and faculty expertise from both departments, electrical engineering and mechanical engineering. The BSISME program will equip students with the knowledge and skills required to design, implement, control, and operate intelligent and mechatronics systems. The graduates of this program will be ready to join the Fourth Industrial Revolution workforce in the rapidly emerging fields of autonomous unmanned vehicles/drones, robotics, automation and additive manufacturing, Internet of Things, human-computer systems, smart grid and intelligent mechatronics systems in general.

The BSISME curriculum is designed to educate future engineers with cutting-edge knowledge, skills and abilities in the different areas of intelligent systems and mechatronics. Graduates will have the ability to gather and use information effectively and to continue enhancing their careers through lifelong learning. The program stresses the effective use of technology, information resources and engineering tools. It prepares graduates to work in a broad range of areas related to the intelligent systems and mechatronics engineering discipline. The program instills leadership qualities based on moral and ethical principles coupled with sound and rational judgment.

Mission Statement

The mission of the Bachelor of Science in Intelligent Systems and Mechatronics Engineering (BSISME) program at AUS is to educate future designers, practitioners and innovators with cutting-edge knowledge, skills and abilities in intelligent systems and mechatronics to meet the societal needs and industrial trends in the United Arab Emirates, the region and globally.

Program Educational Objectives

The objectives of the intelligent systems and mechatronics engineering program are to produce graduates who will:

- be a successful engineer as a member or a leader of a team comprised of a diverse group of professionals
- possess effective communication skills and continue to improve technical and non-technical competencies through

engagement in professional activities, projects and/or graduate studies
- be a holistic citizen demonstrating social, ethical and professional responsibilities

Student Outcomes

Upon graduation, an AUS graduate in intelligent systems and mechatronics engineering should demonstrate:

- an ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental and economic factors
- an ability to communicate effectively with a range of audiences
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks and meet objectives
- an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Admission to the Program

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

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

Degree Requirements

Students seeking the BSISME degree must successfully complete the following minimum requirements:

- a minimum of 130 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 38 credit hours in general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 71 credit hours of major requirements, including professional training for at least eight weeks
  - a minimum of 12 credit hours of major electives
  - a minimum of six credit hours of free electives
- a minimum CGPA of 2.00

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 38 credit hours)

Students must successfully complete a minimum of 38 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: PHY 101 and PHY 101L; CHM 101 and CHM 101L, or BIO 101 and BIO 101L
- mathematics requirement: MTH 103 and MTH 104
- statistics requirement: satisfied through NGN 211
- communication requirement: a minimum of nine credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses, including ENG 204
- ethical understanding requirement: satisfied through ISM 490
- discipline specific writing intensive course requirement: satisfied through ISM 491
- oral proficiency requirement: satisfied through ISM 491
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through NGN 112

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (71 credit hours)

- ELE 211 Electric Circuits I
- ELE 342L Analog Electronic Laboratory
- ELE 353 Control Systems I or MCE 410 Control Systems
- ELE 360 Probability and Stochastic Processes
- ISM 210 Digital Systems and Microcontroller Interfacing
- ISM 216L Computer Applications in Intelligent Systems and Mechatronics Engineering I or MCE 226L Computer Applications in Mechanical Engineering I
- ISM 231 Thermal-Fluid Sciences
- ISM 243 Electronic Circuits
- ISM 316L Computer Applications in Intelligent Systems and Mechatronics Engineering II or MCE 326L Computer Applications in Mechanical Engineering II
- ISM 351 Signal Processing in Intelligent Systems
- ISM 361 Mechatronic Systems and Instrumentation
- ISM 364L Measurements and Control Laboratory
- ISM 371 Electric Motors and Drives
- ISM 382 Connectivity in Intelligent Systems
- ISM 383 Learning in Intelligent Systems
- ISM 391L Intelligent Systems and Mechatronics Design Laboratory
- ISM 490 Design Project I
- ISM 491 Design Project II
- MCE 216L Introduction to Engineering Drawing and Workshop
- MCE 223 Mechanics of Materials
- MCE 224 Engineering Mechanics–Statics and Dynamics
- MCE 236L Solid Modeling
- MCE 325 Numerical Methods in Engineering
- MCE 464 Introduction to Robotics
- MTH 225 Differential Equations and Linear Algebra
- NGN 110 Introduction to Engineering and Computing

- NGN 112 Introduction to Artificial Intelligence and Data Science
- NGN 211 Introduction to Engineering Probability and Statistics
- NGN 397 Professional Training in Engineering and Computing
- PHY 102 General Physics II
- PHY 102L General Physics Laboratory II

Major Electives
(minimum of 12 credit hours)

Students are required to successfully complete a minimum of 12 credit hours from the following list of elective courses, with a minimum of six credit hours in ISM courses:

- ELE 432 Medical Instrumentation
- ELE 440 Radio Transceivers Design and Analysis
- ELE 456 Pattern Recognition
- ELE 458 Multimedia Communications and Networking
- ELE 460 Deep Networks in Machine Learning
- ELE 470 Autonomous Robotic Systems
- ELE 471 Digital Control Systems
- ISM 411 Brain Machine Interface
- ISM 412 Statistical Signal Processing
- ISM 431 Fluid Power Control
- ISM 433 Intelligent Manufacturing
- ISM 442 Automotive Electronics
- ISM 443 Introduction to MEMS
- ISM 484 Smart Grids
- ISM 494 approved special topic courses in intelligent systems and mechatronics engineering. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- MCE 416 Kinematics and Dynamics of Machinery
- MCE 423 Mechanical Vibrations

Free Electives
(minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses at or above the 100 level.

Proposed Sequence of Study
Bachelor of Science in Intelligent Systems and Mechatronics Engineering (BSISME)

FIRST YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
	CHM 101 or BIO 101	General Chemistry I or General Biology I	3
	CHM 101L or BIO 101L	General Chemistry Laboratory I or General Biology Laboratory I	1
	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing I	3
		Total	**16**
Spring	MTH 104	Calculus II	3
	NGN 112	Introduction to Artificial Intelligence and Data Science	3
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	WRI 102	Academic Writing II	3
	FRE	Free Elective	3
		Total	**16**

SECOND YEAR (34 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ISM 216L or MCE 226L	Computational Applications in Intelligent Systems and Mechatronics or Computer Applications in Mechanical Engineering I	1
	MCE 216L	Introduction to Engineering Drawing and Workshop	1
	MCE 224	Engineering Mechanics–Statics and Dynamics	3
	ELE 211	Electric Circuits I	3
	ENG 204	Advanced Academic Writing	3
	MTH 225	Linear Algebra and Differential Equations	3
	NGN 211	Introduction to Engineering Probability and Statistics	3
		Total	**17**
Spring	ISM 210	Digital Systems and Microcontroller Interfacing	4
	ISM 231	Thermal-Fluid Sciences	3
	ISM 243	Electronic Circuits	3
	MCE 223	Mechanics of Materials	3
	MCE 236L	Solid Modeling	1
	GER-Core	History and Culture of the Arab World	3
		Total	**17**

THIRD YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ISM 316L or MCE 326L	Computer Applications in Intelligent Systems and Mechatronics II or Computer Applications in Mechanical Engineering II	1
	ISM 351	Signal Processing in Intelligent Systems	3
	ISM 361	Mechatronic Systems and Instrumentation	3
	ELE 342L	Analog Electronics Laboratory	1
	ELE 360	Probability and Stochastic Processes	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	GER-Core	Arts and literature	3
		Total	**17**
Spring	ISM 371	Electric Motors and Drives	3
	ISM 382	Connectivity in Intelligent Systems	3
	ISM 383	Learning in Intelligent Systems	3
	MCE 325	Numerical Methods in Engineering	3
	ELE353 or MCE 410	Control systems I or Control Systems	3
		Total	**15**
Summer	NGN 397	Professional Training in Engineering and Computing	0

FOURTH YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ISM 364L	Measurements and Control Laboratory	1
	ISM 490	Design Project I	1
	MCE 464	Introduction to Robotics	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**17**
Spring	ISM 391L	Intelligent Systems and Mechatronics Design Laboratory	1
	ISM 491	Design Project II	2
	MJE	Major Elective	3
	FRE	Free Elective	3
	GER-Core	Culture in a Critical Perspective	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**15**

Minor in Electrical Engineering

A minor in electrical engineering provides an avenue for students to gain more profound knowledge in electrical engineering. The content of the courses offered provides tools and skills in advanced fields sought-after by certain employers.

Students seeking a minor in electrical engineering must successfully complete the following requirements:

- a minimum of 15 credit hours including:
  - nine credit hours of minor requirements
  - a minimum of six credit hours of minor electives
- a minimum of nine credit hours of the 15 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor.

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(9 credit hours)

Students must successfully complete the following courses:

- ELE 212 Electric Circuits II
- ELE 241 Electronics I
- ELE 352 Electric Machines

Minor Electives
(minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in 300-level and above ELE courses.

Department of Industrial Engineering

Abdulrahim Shamayleh, Head

Faculty

Vian Ahmed
Faisal Alkaabneh
Tufool Alnuaimi
Hussam Alshraideh
Mazen Arafah
Rami Afif As'ad
Mohamed Awad
Mahmoud Ismail Awad
Zied Bahroun
Mohamed BenDaya
Yang Deng
Vincent Duffy
Bayan Hamdan
Moncer Hariga
Noha Hassan
Ahmed Maged
Malik Ndiaye
Yimo Yan

Bachelor of Science in Industrial Engineering (BSIE)

The industrial engineering program is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates.

The Bachelor of Science in Industrial Engineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Program Criteria for Industrial and Similarly Named Engineering Programs.

The industrial engineering curriculum is a four-year program leading to a Bachelor of Science in Industrial Engineering (BSIE). The program is designed with the aim of graduating engineers with the knowledge and skills necessary to function as professional engineers in a working environment where cost effectiveness, high productivity, continuous quality and reliability improvements, waste reduction, and efficient resource utilization are critical success factors for organizations. These skills will help industrial engineering graduates to build successful careers in several engineering professions such as supply chain analysis and design; logistics engineering; data analytics; decision science; facility design and planning; production planning, scheduling and control; quality control; warehousing and inventory control; reliability; and maintenance engineering. Furthermore, industrial engineering graduates have the abilities to work in manufacturing and service-oriented organizations such as banks, health care, government, utilities, hospitality, retail, logistics and transportation services. They are able to immediately deliver significant business improvements and economic savings to their company of employment.

Mission Statement

The mission of the industrial engineering program at AUS is to promote and maintain excellence in teaching and learning to equip students with strong core competencies in industrial engineering and empower them with the skills required for successful professional careers. The industrial engineering program promotes and enhances faculty expertise in research and development toward providing technical solutions for social challenges and community advancement through outreach activities and networking with regional and international organizations.

Program Educational Objectives

The objectives of the industrial engineering program are to produce graduates who will:

- have successful careers as industrial engineers, especially in the fields of logistics and supply chain engineering, as well as quality and maintenance engineering
- think independently and communicate effectively as team members and team leaders
- practice engineering considering global, ethical and social factors
- continue their professional development through further education and advanced studies

Student Outcomes

Upon graduation, an AUS graduate in industrial engineering should demonstrate:

- an ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental and economic factors
- an ability to communicate effectively with a range of audiences
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks and meet objectives
- an ability to develop and conduct appropriate experimentation, analyze and

interpret data, and use engineering judgment to draw conclusions
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Admission to the Program

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

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

Degree Requirements

Students seeking the BSIE degree must successfully complete the following minimum requirements:

- a minimum of 130 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 38 credit hours in general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 71 credit hours of major requirements, including professional training for at least eight weeks
  - a minimum of 12 credit hours of major electives
  - a minimum of six credit hours of free electives
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 38 credit hours)

Students must successfully complete a minimum of 38 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: CHM 101, CHM 101L, PHY 101 and PHY 101L
- mathematics requirement: MTH 103 and MTH 104
- statistics requirement: satisfied through NGN 211
- communication requirement: a minimum of nine credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses, including ENG 204
- ethical understanding requirement: satisfied through INE 490
- discipline-specific writing intensive course requirement: satisfied through INE 491
- oral proficiency requirement: satisfied through INE 491
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through NGN 112

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (71 credit hours)

- EGM 364 Engineering Economy
- INE 202 Fundamentals of Industrial Engineering
- INE 216L Fundamentals of Engineering Design and Technology
- INE 222 Operations Research I
- INE 302 Manufacturing Processes for Industrial Engineers
- INE 302L Manufacturing Processes for Industrial Engineers Laboratory
- INE 310 Data Management and Modeling for Industrial Engineering
- INE 311 Quality Engineering
- INE 315 Programming Applications for Industrial Engineering
- INE 322 Operations Research II
- INE 323 Stochastic Processes and Simulation
- INE 331 Analysis of Production Systems
- INE 332 Analysis of Supply Chains
- INE 333 Facility Design and Operations
- INE 418 Decision Science for Service and Manufacturing Systems
- INE 439 Fundamentals of Manufacturing Systems
- INE 465 Service Systems Engineering
- INE 490 Senior Design Project I
- INE 491 Senior Design Project II
- MCE 230 Materials Science
- MTH 203 Calculus III
- MTH 225 Differential Equations and Linear Algebra
- NGN 110 Introduction to Engineering and Computing
- NGN 112 Introduction to Artificial Intelligence and Data Science
- NGN 211 Introduction to Engineering Probability and Statistics
- NGN 397 Professional Training in Engineering and Computing
- PHY 102 General Physics II
- PHY 102L General Physics Laboratory II

Major Electives (minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours in courses selected from the following list. A minimum of nine credit hours must be from INE courses.

- EGM 363 Value Analysis and Engineering
- FIN 430 Financial Forecasting
- INE 413 Maintenance Engineering
- INE 415 Design of Experiments
- INE 417 Six Sigma Methodology
- INE 425 Decision Analysis
- INE 431 Industrial Scheduling
- INE 433 Logistics Engineering
- INE 434 Analysis of Procurement and Warehousing Operations
- INE 450 Safety Engineering
- INE 460 Industrial Resources Planning
- INE 494 special topic courses in industrial engineering
- STA 401 Introduction to Data Mining

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives (minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses at or above the 100 level.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Science in Industrial Engineering (BSIE)

FIRST YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHM 101	General Chemistry I	3
	CHM 101L	General Chemistry Laboratory I	1
	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing I	3
		Total	**16**
Spring	MTH 104	Calculus II	3
	NGN 112	Introduction to Artificial Intelligence and Data Science	3
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	WRI 102	Academic Writing II	3
	GER-Core	History and Culture of the Arab World	3
		Total	**16**

SECOND YEAR (31 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENG 204	Advanced Academic Writing	3
	INE 202	Fundamentals of Industrial Engineering	3
	INE 216L	Fundamentals of Engineering Design and Technology	1
	MTH 225	Differential Equations and Linear Algebra	3
	NGN 211	Introduction to Engineering Probability and Statistics	3
	GER-Core	Culture in a Critical Perspective	3
		Total	**16**
Spring	IEN 301	Innovation and Entrepreneurship Mindset	3
	INE 222	Operations Research I	3
	MCE 230	Materials Science	3
	MTH 203	Calculus III	3
	GER-Core	Arts and Literature	3
		Total	**15**

THIRD YEAR (34 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	EGM 364	Engineering Economy	3
	INE 302	Manufacturing Processes for Industrial Engineers	3
	INE 302L	Manufacturing Processes for Industrial Engineers Laboratory	1
	INE 310	Data Management and Modeling for Industrial Engineering	3
	INE 322	Operations Research II	3
	INE 331	Analysis of Production Systems	3
		Total	**16**
Spring	INE 311	Quality Engineering	3
	INE 315	Programming Applications for Industrial Engineering	3
	INE 323	Stochastic Processes and Simulation	3
	INE 332	Analysis of Supply Chains	3
	INE 333	Facility Design and Operations	3
	FRE	Free Elective	3
		Total	**18**
Summer	NGN 397	Professional Training in Engineering and Computing	0

FOURTH YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	INE 418	Decision Science for Service and Manufacturing Systems	3
	INE 465	Service Systems Engineering	3
	INE 490	Senior Design Project I	1
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**16**
Spring	INE 439	Fundamentals of Manufacturing Systems	3
	INE 491	Senior Design Project II	2
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Course Selected from General Education Core Requirements	3
	FRE	Free Elective	3
		Total	**17**

Minor in Engineering Management

Abdulrahim Shamayleh, Coordinator

The engineering management minor provides students with the opportunity to learn how to manage major engineering projects. The content of the courses offered in the minor is a unique blend of engineering tools and business management skills.

Students enrolling in the engineering management minor should have normally completed a minimum of 60 credit hours of course work and be in good academic standing.

Students seeking a minor in engineering management must successfully complete the following requirements:

- a minimum of 12 credit hours from the list of required courses
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that credit hours are not double counting.

Minor Requirements
(12 credit hours)

Students must successfully complete a minimum of four courses (12 credit hours) from the following:

- ACC 201 Fundamentals of Financial Accounting
- EGM 361 Management for Engineers
- EGM 362 Engineering Project Management
- EGM 363 Value Analysis and Engineering
- EGM 364 Engineering Economy (not open to industrial and civil engineering students)

Department of Mechanical Engineering

Mamoun Abdel-Hafez, Head

Faculty

Mohamed Omar Abdelgawad
Bassam Abu-Nabah
Wael Abuzaid
Khaled Aljanaideh
Maen Alkhader
Basil Darras
Samir Emam
Abdallah Ghazal
Mehdi Ghommem
Mohammad Hamdan
Ahmad Hanafy Ibrahim
Abdurrahman Ircheid
Mohammad Jaradat
Tod A. Laursen
Mehmet Fatih Orhan
Lotfi Romdhane
Majid Warikani

Bachelor of Science in Mechanical Engineering (BSME)

The Bachelor of Science in Mechanical Engineering program is accredited by the Commission for Academic Accreditation of the Ministry of Higher Education and Scientific Research in the United Arab Emirates.

The Bachelor of Science in Mechanical Engineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Program Criteria for Mechanical and Similarly Named Engineering Programs.

Mechanical engineering provides an excellent broad education for today's technological world. Mechanical engineers model, analyze, test and manufacture engines that power ground and aerospace vehicles. They also design, operate and modify power plants that convert the energy in fuels, wind and sunlight into electricity and other forms of energy, and they construct intelligent machines and robots in industry. Mechanical engineers also build prototypes of conventional, electric and sports vehicles, develop energy management systems for industry, design and manufacture smart products, and develop new engineering materials that are used in manufacturing high-tech products. Mechanical engineers use computers extensively in their everyday operation; they develop computer control systems for automobiles and industrial processes and design computer interfaces to mechanical and energy systems. Mechanical engineers also develop alternative energy sources such as solar, fuel cells, wind and alternative fuels. They are heavily involved in new technologies such as MEMS, nanosystems and biotechnologies. In short, the mechanical engineer is a vital backbone element of the engineering profession.

The BSME curriculum produces high-quality graduates whose work is notable for its breadth and technical excellence. Graduates have the ability to work logically, accurately and efficiently; to gather and use information effectively; and to continue enhancing their careers through lifelong learning. The program stresses the effective use of technology, information resources and engineering tools. It prepares graduates to work in a broad range of areas related to the mechanical engineering profession. The program instills leadership qualities based on moral and ethical principles coupled with sound and rational judgment. Finally, the program is designed to prepare interested students for graduate studies in mechanical engineering and other areas of professional practice.

Mission Statement

The mission of the mechanical engineering program at AUS is to educate the engineers of tomorrow by integrating classroom theory and hands-on experience, emphasizing the process of learning and critical thinking, conducting cutting-edge research, and serving the engineering profession, industry and society at large. The mechanical engineering program fosters lifelong learning, ethics and professional development, and embraces diversity among its faculty and student body.

Program Educational Objectives

The objectives of the mechanical engineering program are to produce graduates who will:

- actively embrace leadership roles in the practice of mechanical engineering, conduct research and development to advance technology and foster innovation, and apply their engineering problem-solving skills as needed in the workplace
- actively participate in on-going professional development, updating and adapting their core knowledge, and acquiring new knowledge and skills to pursue new career opportunities
- serve the engineering profession and support sustainable development

Student Outcomes

Upon graduation, an AUS graduate in mechanical engineering should demonstrate:

- an ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental and economic factors
- an ability to communicate effectively with a range of audiences
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks and meet objectives
- an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Admission to the Program

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

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

Degree Requirements

Students seeking the BSME degree must successfully complete the following minimum requirements:

- a minimum of 130 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 38 credit hours in general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 71 credit hours of major requirements, including professional training for at least eight weeks
  - a minimum of 12 credit hours of major electives
  - a minimum of six credit hours of free electives

• a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 38 credit hours)

Students must successfully complete a minimum of 38 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the core general education requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: CHM 101, CHM 101L, PHY 101 and PHY 101L
- mathematics requirement: MTH 103 and MTH 104
- statistics requirement: satisfied through NGN 211
- communication requirement: a minimum of nine credit hours in 100-level or above writing (WRI) courses and/or 200-level and above English (ENG) courses, including ENG 204
- ethical understanding requirement: satisfied through MCE 490
- discipline specific writing intensive course requirement: satisfied through MCE 491
- oral proficiency requirement: satisfied through MCE 490
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through NGN 112

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (71 credit hours)

- MCE 216L Introduction to Engineering Drawing and Workshop
- MCE 220 Statics
- MCE 222 Dynamics
- MCE 223 Mechanics of Materials
- MCE 226L Computer Applications in Mechanical Engineering I
- MCE 230 Materials Science
- MCE 236L Solid Modeling
- MCE 240 Fluid Mechanics
- MCE 241 Thermodynamics I
- MCE 310 Fundamentals of Electromechanical Systems
- MCE 313 Engineering Measurements
- MCE 313L Engineering Measurements Laboratory
- MCE 323 Mechanical Design
- MCE 325 Numerical Methods in Engineering
- MCE 326L Computer Applications in Mechanical Engineering II
- MCE 331 Manufacturing Processes
- MCE 332L Materials and Manufacturing Processes Laboratory
- MCE 341 Thermodynamics II
- MCE 344 Heat Transfer
- MCE 345L Thermofluids Laboratory
- MCE 410 Control Systems
- MCE 415L Dynamics and Control Systems Laboratory
- MCE 490 Mechanical Engineering Design Project I
- MCE 491 Mechanical Engineering Design Project II
- MTH 203 Calculus III
- MTH 225 Differential Equations and Linear Algebra
- NGN 110 Introduction to Engineering and Computing
- NGN 112 Introduction to Artificial Intelligence and Data Science
- NGN 211 Introduction to Engineering Probability and Statistics
- NGN 397 Professional Training in Engineering and Computing
- PHY 102 General Physics II
- PHY 102L General Physics Laboratory II

Major Electives (minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours in courses selected from the following list:

- ASE 415 Aircraft Stability and Control
- ASE 450 Applied Aerodynamics
- ASE 452 Aerospace Propulsion
- ELE 470 Autonomous Robotic Systems
- ISM 431 Fluid Power Control
- ISM 443 Introduction to MEMS
- MCE 416 Kinematics and Dynamics of Machinery
- MCE 423 Mechanical Vibrations
- MCE 438 Inspection and Nondestructive Testing
- MCE 445 Energy Systems
- MCE 446 Refrigeration and Air Conditioning
- MCE 447 Internal Combustion Engines
- MCE 450 Energy Conservation and Management
- MCE 451 Renewable Energy Systems
- MCE 452 Fuel Cells and Hydrogen Systems
- MCE 464 Introduction to Robotics
- MCE 466 Introduction to Mechatronics
- MCE 473 Applied Finite Element Analysis
- MCE 477 Composite Materials
- MCE 482 Intermediate Fluid Mechanics
- MCE 485 Hydraulics of Pipeline Systems
- MCE 487 Turbomachines
- MCE 488 Introduction to Computational Fluid Dynamics
- MCE 494 approved special topic courses in mechanical engineering. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- SFE 410 Fundamentals of Fire Protection Engineering

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement.

Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives (minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses at or above the 100 level.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Science in Mechanical Engineering (BSME)

FIRST YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	CHM 101	General Chemistry I	3
	CHM 101L	General Chemistry Laboratory I	1
	MTH 103	Calculus I	3
	NGN 110	Introduction to Engineering and Computing	2
	PHY 101	General Physics I	3
	PHY 101L	General Physics Laboratory I	1
	WRI 101	Academic Writing I	3
		Total	**16**
Spring	MTH 104	Calculus II	3
	NGN 112	Introduction to Artificial Intelligence and Data Science	3
	PHY 102	General Physics II	3
	PHY 102L	General Physics Laboratory II	1
	WRI 102	Academic Writing II	3
	GER-Core	Human Interaction and Behavior	3
		Total	**16**

SECOND YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENG 204	Advanced Academic Writing	3
	MCE 216L	Introduction to Engineering Drawing and Workshop	1
	MCE 220	Statics	3
	MCE 230	Materials Science	3
	MCE 241	Thermodynamics I	3
	NGN 211	Introduction to Engineering Probability and Statistics	3
		Total	**16**
Spring	IEN 301	Innovation and Entrepreneurship Mindset	3
	MCE 222	Dynamics	3
	MCE 223	Mechanics of Materials	3
	MCE 226L	Computer Applications in Mechanical Engineering I	1
	MCE 236L	Solid Modeling	1
	MCE 240	Fluid Mechanics	3
	MTH 225	Differential Equations and Linear Algebra	3
		Total	**17**

THIRD YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MCE 310	Fundamentals of Electromechanical Systems	3
	MCE 323	Mechanical Design	3
	MCE 326L	Computer Applications in Mechanical Engineering II	1
	MCE 331	Manufacturing Processes	3
	MCE 332L	Materials and Manufacturing Processes Laboratory	1
	MTH 203	Calculus III	3
	FRE	Free Elective	3
		Total	**17**
Spring	MCE 313	Engineering Measurements	3
	MCE 325	Numerical Methods in Engineering	3
	MCE 341	Thermodynamics II	3
	MCE 344	Heat Transfer	3
	MCE 345L	Thermofluids Laboratory	1
	GER-Core	Arts and Literature	3
		Total	**16**
Summer	NGN 397	Professional Training in Engineering and Computing	0

FOURTH YEAR (32 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MCE 313L	Engineering Measurements Laboratory	1
	MCE 410	Control Systems	3
	MCE 490	Mechanical Engineering Design Project I	1
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	History and Culture of the Arab World	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**17**
Spring	MCE 415L	Dynamics and Control Systems Laboratory	1
	MCE 491	Mechanical Engineering Design Project II	2
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**15**

Minor in Mechanical Engineering

Students enrolling in the mechanical engineering minor should have normally completed a minimum of 60 credit hours of course work and be in good academic standing.

Students seeking a minor in mechanical engineering must successfully complete the following requirements:

- a minimum of 18 credit hours including:
  - nine credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of nine credit hours of the 18 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(9 credit hours)

Students must successfully complete the requirements of one of the following two options:

Option 1

- MCE 222 Dynamics or
  MCE 224 Engineering Mechanics—Statics and Dynamics
- MCE 223 Mechanics of Materials

- MCE 240 Fluid Mechanics or MCE 241 Thermodynamics I

Option 2

- MCE 222 Dynamics or MCE 223 Mechanics of Materials or MCE 224 Engineering Mechanics—Statics and Dynamics
- MCE 240 Fluid Mechanics
- MCE 241 Thermodynamics I

Minor Electives (minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in 300-level or above MCE courses, excluding MCE 490 and MCE 491. INE 439 meets this requirement.

Other Minors Offered by the College of Engineering

Minor in Aerospace Engineering

Samir Emam, Coordinator

Aerospace engineering deals with the analysis, design and performance of flight vehicles such as transport and military aircraft, helicopters, missiles and launch vehicles (rockets), and spacecraft such as the space shuttle. Aerospace engineering comprises several disciplines, namely aerodynamics, flight dynamics and control, avionics and navigation, aerospace propulsion, aerospace structures and materials, and aerospace manufacturing among others. Aerospace engineers apply their knowledge and skills to the design of aircraft components (e.g., wings and fuselages), systems (e.g., control systems) or spacecraft components and systems. This minor focuses on aeronautical engineering.

Students seeking a minor in aerospace engineering must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - nine credit hours of minor requirements
  - a minimum of three credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements (9 credit hours)

Students must successfully complete nine credit hours in courses selected from the following list:

- ASE 415 Aircraft Stability and Control
- ASE 450 Applied Aerodynamics
- ASE 452 Aerospace Propulsion

Minor Electives (minimum of 3 credit hours)

Students must successfully complete a minimum of three credit hours in courses selected from the following list:

- MCE 438 Inspection and Nondestructive Testing
- MCE 473 Applied Finite Element Analysis
- MCE 477 Composite Materials
- MCE 488 Introduction to Computational Fluid Dynamics

Minor in Biomedical Engineering

Hasan Al-Nashash, Coordinator

Biomedical engineering is a multidisciplinary field that combines principles of physics, chemistry and biology with engineering sciences to study and advance knowledge in biology, physiology and human health. A biomedical engineer can develop diagnostic instruments, novel materials, drug delivery systems or informatics, for example. The main objective for a biomedical engineer is to improve the quality of life for patients, and to help in the advancement of health professions.

Students enrolling in the biomedical engineering minor should have normally completed a minimum of 60 credit hours of course work and be in good academic standing.

Students seeking a minor in biomedical engineering must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - a minimum of three credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements (minimum of 3 credit hours)

Students must successfully complete one of the following options:

- BIO 101 General Biology I and BIO 101L General Biology Laboratory I
- BIO 210 Introduction to Human Anatomy and Physiology

Minor Electives (minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following list:

- BIO 341 Principles of Pharmacology
- BME 410 Biomedical Systems Modeling I or CBE 483 Fundamentals of Biomedical Engineering

- BME 420 Biomedical Electronics I or ELE 432 Medical Instrumentation I
- BME 494 Special Topics in Biomedical Engineering
- CBE 384 Biochemical Engineering Principles
- CMP 466 Machine Learning and Data Mining
- COE 411 Embedded and Cyber Physical Systems

Minor in Environmental and Water Engineering

Md. Maruf Mortula, Coordinator

Environmental and water engineering is an interdisciplinary field that combines principles of chemistry and biology with engineering science to study the engineered approaches to protecting water and environment. Environmental and water engineering can include water supply and sewerage systems, water and wastewater treatment, waste management, water quality in coastal areas and environmental resources management. The main objective of an environmental and water engineer is to learn the skills and technologies needed to protect our water and environmental resources.

Students enrolling in the environmental and water engineering minor should have normally completed a minimum of 60 credit hours and be in good academic standing.

Students seeking a minor in environmental and water engineering must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - six credit hours of minor requirements
  - a minimum of six credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(6 credit hours)

Students must successfully complete the following courses:

- EWE 331 Introduction to Water and Environmental Engineering
- EWE 333 Water Quality and Treatment

Minor Electives
(minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses selected from the following list:

- CHE 461 Air Pollution
- CHE 467 Corrosion
- CHE 470 Waste Management and Control in Chemical Engineering
- CHE 472 Water and Wastewater Treatment Design
- CHE 473 Fundamentals of Carbon Capture and Storage Technology
- CVE 341 Water Resources Engineering
- CVE 352 Environmental Engineering
- CVE 441 Coastal Engineering
- CVE 451 Urban Water Infrastructure Management
- CVE 452 Water Distribution and Wastewater Collection Systems
- CVE 472 Geographic Information Systems
- ECO 404 Economics of Natural and Environmental Resources
- ENV 201 Fundamentals of Environmental Sciences and Sustainability
- ENV 252 Environmental Chemistry and Analysis
- ENV 311 Environmental Modeling
- ENV 356 Climate Change
- PHI 309 Ethics and Environment
- SOC 302 Environmental Sociology
- any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in Mechatronics Engineering

Mamoun Abdel-Hafez, Coordinator

Mechatronics is the synergistic combination of mechanical engineering, electronics and electrical engineering with computer science and control systems engineering. Intelligent machines such as robots contain mechanical, electrical and computer systems working in harmony to achieve higher levels of functionality to serve modern life. For example, autonomous vehicles have evolved beyond a mechanical system with electrical components to an integrated system of electro-mechanical devices, embedded microcontrollers, network communications and intelligent software. To develop these advanced intelligent systems, a new breed of multidisciplinary engineers is needed who not only have a strong foundation in engineering design, but also feel comfortable working across the traditional engineering disciplines of manufacturing, mechanical, electrical and computer engineering.

Students enrolling in the mechatronics engineering minor should have normally completed a minimum of 60 credit hours of course work and be in good academic standing.

The mechatronics minor is restricted to computer, electrical and mechanical engineering students. Students in other majors interested in this minor should contact the College of Engineering Associate Dean for Undergraduate Studies to investigate the possibility of pursuing this minor.

Students seeking a minor in mechatronics engineering must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - nine credit hours of minor requirements for computer engineering students and three credit hours of minor requirements for electrical engineering and mechanical engineering students
  - a minimum of three credit hours of minor electives for computer engineering students and a minimum of nine credit hours of minor electives for electrical and mechanical engineering students
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(9/3 credit hours)

- Computer engineering students must successfully complete the following requirements:
  - ELE 212 Electric Circuits II
  - ELE 353 Control Systems I
  - MCE 466 Introduction to Mechatronics
- Electrical and mechanical engineering students must successfully complete one of the following requirements:
  - COE 431 Industrial Cyber Physical Systems
  - MCE 466 Introduction to Mechatronics

Minor Electives
(minimum of 3/9 credit hours)

Computer engineering students must successfully complete a minimum of three credit hours in courses selected from the following list; electrical and mechanical engineering students must successfully complete a minimum of nine credit hours in courses selected from the list and not used as minor requirements:

- CMP 333 Artificial Intelligence
- CMP 466 Machine Learning and Data Mining
- COE 411 Embedded and Cyber Physical Systems
- COE 487 Virtual and Augmented Reality
- ELE 444 Control Systems II
- ELE 460 Deep Networks in Machine Learning
- ELE 470 autonomous Robotic Systems
- ELE 486 Electric Drives
- ISM 431 Fluid Power Control
- MCE 416 Kinematics and Dynamics of Machinery
- MCE 464 Introduction to Robotics

Minor in Renewable Energy

Ahmed Osman, Coordinator

Renewable energy is a multidisciplinary area that integrates different fields including electrical engineering and mechanical engineering. The minor provides students with an opportunity to acquire skills that would enhance their preparation for joining the related industry. The renewable energy minor will expose students to solar and wind energy sources and electrical energy conversion.

Students enrolling in the renewable energy minor should have normally completed a minimum of 60 credit hours of course work and be in good academic standing.

Students seeking a minor in renewable energy must successfully complete the following requirements:

- a minimum of 15 credit hours including:
  - 12 credit hours of minor requirements
  - a minimum of three credit hours of minor electives
- a minimum of nine credit hours of the 15 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(12 credit hours)

Students must successfully complete the following requirements:

- ELE 352 Electric Machines
- ELE 487 Power Conversion in Renewable Energy Systems
- MCE 241 Thermodynamics I
- MCE 451 Renewable Energy Systems

Minor Electives
(minimum of 3 credit hours)

Students must successfully complete a minimum of three credit hours in courses selected from the following list:

- ECO 404 Economics of Environmental and Natural Resources
- ELE 481 Power System Protection
- ELE 482 Electric Power Distribution
- ELE 485 Power Electronics
- ELE 486 Electric Drives
- MCE 445 Energy Systems
- MCE 446 Refrigeration and Air Conditioning
- MCE 450 Energy Conservation and Management
- MCE 452 Fuel Cells and Hydrogen Systems
- any approved 400-level special topics courses related to renewable energy. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in Transportation Systems

Akmal Abdelfatah, Coordinator

Transportation is an interdisciplinary field that combines principles of land use, transportation planning, traffic engineering, infrastructure design and operation, transportation economics, human behavior, psychology and engineering science to plan, design, operate, maintain and optimize transportation systems. Transportation systems are powerful means to shaping economies and community life. They enable mobility and accessibility for passengers and goods (freight). Both mobility and accessibility are realized through specialized modes, infrastructure, vehicles, and operations. The planning, design, construction, operations and maintenance of transportation systems must be approached systematically to ensure they meet societies' goals within the confines of critical issues of viability such as the environment, equity, labor, resource politics, economics and international trade, among others. The objective of a transportation systems minor is to empower students with the

principles and means necessary to understand the functionalities of transportation systems and their interactions with surrounding environments as a prelude to sustainably plan, design, operate and maintain those systems.

Students enrolling in the transportation systems minor should have normally completed a minimum of 30 credit hours of course work and be in good academic standing.

Students seeking a minor in transportation systems must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - six credit hours of minor requirements
  - a minimum of six credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives, or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(6 credit hours)

Students must successfully complete the following two courses:

- CVE 460 Transportation Systems Management
- CVE 461 Public Transportation Systems

Minor Electives
(6 credit hours)

Students must successfully complete a minimum of six credit hours in courses selected from the following list:

- CVE 456 Traffic Engineering
- CVE 472 Geographic Information Systems
- ENV 311 Environmental Modeling
- INE 433 Logistics Engineering
- INE 450 Safety Engineering
- MTH 382 Linear Programming and Optimization
- UPL 302 Analysis of Spatial Phenomena
- any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.






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Mission
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School of Business Administration

Dean
Narjess Boubakri

Associate Dean for Undergraduate Programs
Samer Kherfi

Associate Dean for Graduate Programs
Taisier Zoubi

Associate Dean for Research and Innovation
George Christodoulides

As its mission, the School of Business Administration (SBA) at American University of Sharjah prepares tomorrow's global business leaders and contributes to lifelong learning by offering high-quality educational programs patterned after the American model. The school embraces multicultural diversity and seeks to provide regional and global perspectives through programs focused on building core competencies to serve the needs of students, the business community and society. Backed by a faculty committed to discipline-based, applied and pedagogical scholarship, SBA's programs promote critical thinking, creativity, ethical behavior and social responsibility in the development of management and leadership skills.

Today's business professionals must have competence in many disciplines, an understanding of a variety of relationships, and an ability to analyze evolving business, economic and governmental trends. Regardless of the specialty area, SBA students are trained to become leaders who can organize and motivate people to serve the goals of their organizations. Effectively adapting business practices to emerging conditions, such as the accelerating growth of technology, communications and the globalization of the business world, demands a thorough grasp of current business and economic processes, theory and applications. Through its pedagogy, the School of Business Administration:

- prepares students to identify, analyze and understand the interrelationships among business organizations and governments in the UAE, the Gulf States and throughout the world
- develops individuals who can lead organizations toward economic success with an awareness of social and environmental responsibility in the global marketplace of the 21st century
- prepares students to integrate information resources and technology to enable them to anticipate and manage change
- advances students' knowledge of current issues and practices affecting business organizations, international and domestic institutions, and governments
- develops an awareness of societal and environmental needs and concerns as they relate to ethical, professional and socially responsible business practices

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

- utilizing the latest American business methods, techniques and technologies to provide cutting-edge business education
- integrating multidisciplinary approaches to teaching and learning, utilizing the latest business and economic theories coupled with real-world business data analysis and presentations
- integrating multimedia and computer-based instruction throughout the foundation business curriculum to assist students in learning the latest techniques in business and management

AACSB Accreditation

The School of Business Administration is accredited by the Association to Advance Collegiate Schools of Business (AACSB International). AACSB accreditation is an internationally recognized professional designation for business schools and is the hallmark of excellence in business education.

Degree Programs

SBA offers the following undergraduate degree programs:

- Bachelor of Arts in Economics
- Bachelor of Science in Business Administration (BSBA) with majors in
  - accounting
  - economics
  - finance
  - information systems and business analytics
  - management
  - marketing
  - supply chain management

SBA students enrolled in the BSBA degree program may pursue only one major within the BSBA degree program.

The School of Business Administration also offers master's and PhD degree programs. For details on SBA's graduate degree programs, please refer to the *AUS Graduate Catalog*.

Minor Offerings

SBA offers the following minors:

- accounting
- business administration
- economics
- entrepreneurship and innovation
- finance
- fintech
- luxury marketing
- management
- management information systems
- marketing
- supply chain management
- taxation

Details on each minor are provided in the catalog section of the department offering the minor. Details for the business administration minor are provided at the end of the school section.

Minors are open to students from outside SBA and to SBA students pursuing majors in disciplines other than the discipline of the minor. Some minors can be more restrictive. Refer to the section of the minor for more information.

To apply to an SBA minor, students must be in good academic standing and must have successfully completed a minimum of 60 credit hours, except for the minors in economics, fintech and business administration, all of which require successful completion of a minimum of 30 credit hours. Interested students must obtain approval from the head of the department housing the minor and request a meeting with an advisor to review the specific requirements of the minor.

Special Notes

Students taking any course in SBA may be required to use the Texas Instrument BAII Plus calculator or any non-programmable calculator in exams, quizzes or any other form of evaluation. No other calculator models will be allowed. If a student does not have the required model for an

evaluation, the student will have to take the evaluation without a calculator.

Additional fees may be charged for certain courses that require supplementary materials or support by the school.

Computer Requirements

In order to make full use of the learning environment, in-class collaboration and work in groups on multidisciplinary projects, all entering undergraduate students must own a laptop or an Internet-capable device, meeting minimum specifications recommended by the university. These specifications are available on the IT FAQ site here: https://itfaq.aus.edu/faq/584. Students can email itservicedesk@aus.edu or call +971 6 515 2121 for any related questions. In addition, computer devices in specialized and technical labs are accessible to AUS students.

Bachelor of Science in Business Administration (BSBA)

The Bachelor of Science in Business Administration degree program provides students with a 45-credit hours core curriculum that offers a broad knowledge of business functions while emphasizing their application in a global business environment. Imbedded in this core curriculum is a business internship requirement that provides students with the opportunity to experience the corporate world for the first time, to apply the knowledge gained throughout their business program, and to plot a possible career path.

In addition to the business core, the student must complete a minimum of 27 credit hours in a professional area constituting a major. The major allows each student to obtain in-depth knowledge in accounting, economics, finance, information systems and business analytics, management, marketing or supply chain management.

Students must also meet the minimum university requirements in general education courses, the innovation and entrepreneurship requirement, as well as complete a minimum of nine credit hours in free electives. With an appropriate choice of courses, students can benefit from their free electives to complete a minor.

Students in the BSBA degree program complete a common two-year program in which they are introduced to the foundation courses of each of the seven subject areas constituting the major offerings of the degree program, allowing students a more informed decision as they work towards meeting the matriculation requirements of their major of choice (detailed in Choice of Major later in this section of the catalog).

Program Objectives

SBA prepares undergraduate students for careers in business and for further education by providing an American-style curriculum that applies global business perspectives to the historical and cultural context of the Gulf Region. The BSBA degree program seeks to:

- provide students the theoretical foundations across business functions
- develop students' understanding of ethical and social responsibility
- foster teamwork, interpersonal communication and leadership skills
- advance students' critical thinking, analytical and problem-solving skills
- ensure proficiency in a chosen business discipline

Program Outcomes

Graduates from the BSBA degree program are expected to be able to:

- integrate the basic principles of economics, accounting, finance, management, information systems, marketing and operations in the context of a global economy
- apply concepts and theories of ethics and social responsibility to practical business dilemmas, recognizing the implications of management decisions for the interests of key internal and external stakeholders
- demonstrate competency in teamwork, presentation, writing and leadership skills through participation in group projects requiring industry analysis and using the latest business communication tools
- evaluate business situations and critique managerial decisions using financial statements, statistical tools, and other appropriate methods to organize, analyze and present data
- examine common business scenarios using broad knowledge of a specific business discipline, applying concepts, theories and models appropriate to their fields of study

Admission to the Program

Admission to the BSBA degree program follows the university's undergraduate admission requirements. Due to the quantitative emphasis of the business program, new students are required to take the business school mathematics placement examination, in addition to the English language placement test.

AUS students transferring into the program must have a minimum cumulative GPA of 2.00 and the permission of the Associate Dean for Undergraduate Programs. Further conditions could apply. For information, please check with the head of the department housing the major.

Degree Requirements

To qualify for graduation with a Bachelor of Science in Business Administration degree, students must successfully complete the following minimum requirements:

- a minimum of 120 credit hours, including a minimum of 36 credit hours in courses at the 300 level or above, as follows:
  - a minimum of 36 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 45 credit hours of core requirements including an approved internship for a minimum duration of five weeks
  - a minimum of 27 credit hours of major requirements and major electives with a minimum GPA of 2.00
  - a minimum of nine credit hours of free electives
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements, as it applies to their major. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 36 credit hours)

Students in the BSBA degree program must successfully complete a minimum of 36 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the following requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: a minimum of six credit hours in courses meeting this requirement

- mathematics requirement: MTH 102 or MTH 103
- statistics requirement: satisfied through QBA 201
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses or 200-level and above English (ENG) courses meeting this requirement, including ENG 204 and ENG 208
- ethical understanding requirement: satisfied through MGT 360
- discipline-specific writing intensive course requirement: satisfied through MGT 406
- oral proficiency requirement: satisfied through MGT 406
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through QBA 201

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Core Requirements (45 credit hours)

Students in the BSBA degree program must successfully complete the following business core courses:

- ACC 201 Fundamentals of Financial Accounting
- ACC 202 Fundamentals of Managerial Accounting
- BLW 301 Business Law
- BUS 100 Introduction to Business
- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- ENG 225 Writing for Business
- FIN 201 Fundamentals of Financial Management
- ISA 201 Fundamentals of Information Systems and Business Analytics
- MGT 201 Fundamentals of Management
- MGT 360 Business Ethics and Social Responsibility
- MGT 406 Business Policy and Strategy
- MKT 201 Fundamentals of Marketing
- QBA 201 Quantitative Business Analysis
- SCM 202 Operations Management

Internship

Students in the BSBA degree program must successfully complete a five-week internship approved by SBA. The internship is normally completed in the summer preceding the senior year. BUS 397 Business Internship fulfills this requirement. For details on internship eligibility and registration, please refer to Internship Registration under Registration and Course Information in the Academic Policies and Regulations section of the catalog.

Major Requirements and Major Electives (minimum of 27 credit hours)

A minimum total of 27 credit hours of course work must be successfully completed in one of the following majors: accounting, economics, finance, information systems and business analytics, management, marketing or supply chain management. Required and elective courses for each major are listed within the corresponding major sections that follow. Students must successfully complete these courses with a minimum CGPA of 2.00.

Free Electives (minimum of 9 credit hours)

BSBA students must successfully complete a minimum of nine credit hours of free electives, excluding MTH 100.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study

BSBA students complete a common first-year and second-year program, followed by the sequence of study for their chosen major in their third and fourth years.

Students who, based on the results of their placement tests, are required to complete the preparatory writing course (WRI 001) and/or the business mathematics preparatory course (MTH 002) are strongly advised to complete a summer term at the end of their first year of study to get back on track with the proposed sequence of study.

BSBA students are expected to follow the recommended sequence of study for their chosen major. Students who do not follow the recommended sequence of study might require more than four years to complete their program.

Proposed Sequence of Study
Bachelor of Science in Business Administration (BSBA)
Common Two Years

FIRST YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ACC 201	Fundamentals of Financial Accounting	3
	BUS 100	Introduction to Business	3
	WRI 101	Academic Writing I	3
	GER-Core	History and Culture of the Arab World	3
	GER-Core	Course Selected from General Education Core Requirements	3
		Total	**15**
Spring	ISA 201	Fundamentals of Information Systems and Business Analytics	3
	MGT 201	Fundamentals of Management	3
	MTH 102	Calculus for Business	3
	WRI 102	Academic Writing II	3
	GER-SCI	Natural Sciences	3
		Total	**15**

SECOND YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ECO 201	Principles of Microeconomics	3
	ENG 204	Advanced Academic Writing	3
	MKT 201	Fundamentals of Marketing	3
	QBA 201	Quantitative Business Analysis	3
	GER-SCI	Natural Sciences	3
		Total	**15**
Spring	ACC 202	Fundamentals of Managerial Accounting	3
	ECO 202	Principles of Macroeconomics	3
	FIN 201	Fundamentals of Financial Management	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	SCM 202	Operations Management	3
		Total	**15**

Students who are placed in WRI 001 and/or MTH 002 are strongly advised to complete a summer term at the end of their first year of study to get back on track with the proposed sequence of study and avoid graduation delays.

Choice of Major

Prior to starting their major courses, BSBA students must declare their choice of major. A Change of Major Form must be submitted to the Office of the Associate Dean for Undergraduate Programs for approval, by the last day of the 12th week of classes of the semester in which the student will complete 60 credit hours. The approved form must be filed with the Office of the Registrar by the end of the add and drop period of the semester in which it will be effective. Students must meet the following minimum requirements:

- a cumulative GPA of 2.00 or above
- successful completion of at least 60 credit hours at the end of the semester in which the choice of major is declared, with 21 credit hours completed from business core courses. Credit hours may not include preparatory 00X courses or English Bridge Program courses.
- passing of BUS 100
- passing of the 200-level business core course introductory to the intended major. Students with an intended major in economics complete ECO 201 as the introductory 200-level course.

Further conditions could be required by the different departments.

Students are strongly advised to register for 300- and 400-level courses in their SBA major field of study after having completed the above requirements.

Major in Accounting

This major prepares its graduates for positions in industry, public accounting, government and not-for-profit organizations, as well as for graduate study. It provides students with a foundation in the primary areas of the accounting discipline including cost accounting, financial accounting, accounting information systems, assurance services, federal income taxes and related business areas.

Students are also provided with an opportunity to develop their communication skills, integrate and advance their technological skills, and to use critical thinking to analyze ambiguous situations and provide relevant business alternatives. In addition, the accounting major helps prepare students to obtain professional certifications such as Certified Public Accountant (CPA), Certified Management Accountant (CMA) and Certified Internal Auditor (CIA).

In addition to meeting the common BSBA graduation requirements (detailed earlier under Degree Requirements), students in the accounting major must meet the following requirements. Students must successfully complete courses taken as major requirements and major electives with a minimum CGPA of 2.00.

Major Learning Outcomes

Upon successful completion of the BSBA degree program with a major in accounting, graduates will be able to:

- integrate knowledge of theories and models, techniques, and practices from all of the major business disciplines.
- describe accounting theories, principles, and techniques, and their effective role in communicating accounting information for decision-making
- demonstrate a comprehensive knowledge of audit framework, standards, and procedures, and apply critical thinking in auditing financial statements
- use effective communication skills and appropriate technological tools to prepare and present accounting information to its users
- apply data analytics techniques, self-learning, and research skills to gather, analyze, critically evaluate, and effectively communicate accounting information to aid business decision-making, and to solve business problems
- recognize the critical role of ethical standards, social responsibility, and internal control in preventing fraudulent accounting activities
- develop skills in managing tasks under different conditions and taking responsibility for decisions, with minimal guidance and in cooperation with others.

Major Requirements
(18 credit hours)

- ACC 301 Intermediate Financial Accounting I
- ACC 302 Intermediate Financial Accounting II
- ACC 305 Income Tax I
- ACC 360 Accounting Information Systems
- ACC 380 Data Analytics for Accounting
- ACC 410 Auditing

Major Electives
(minimum of 9 credit hours)

In consultation with their advisor, students must successfully complete a minimum of nine credit hours in approved 300-level or above ACC courses not listed as major requirements.

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Proposed Sequence of Study
Bachelor of Science in Business Administration (BSBA)
Accounting Major (third and fourth year)

THIRD YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ACC 301	Intermediate Financial Accounting I	3
	ACC 380	Data Analytics for Accounting	3
	ENG 208	Public Speaking	3
	MGT 360	Business Ethics and Social Responsibility	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
		Total	**18**
Spring	ACC 302	Intermediate Financial Accounting II	3
	ACC 360	Accounting Information Systems	3
	BLW 301	Business Law	3
	ENG 225	Writing for Business	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Summer	BUS 397	Business Internship	0

FOURTH YEAR (27 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ACC 305	Income Tax I	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**15**
Spring	ACC 410	Auditing	3
	MGT 406	Business Policy and Strategy	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**12**

Students who do not follow the recommended sequence of study might require more than four years to complete their program.

Major in Economics

This major provides students with the theoretical foundation to apply economics to decision-making and public policy in businesses and other organizations. From the common core of the intermediate theory courses in micro- and macroeconomics, students can branch out into several application areas in economics (such as international economics, industrial organization, money and banking) or pursue more advanced courses (such as managerial economics, econometrics or the senior economics seminar).

In addition to meeting the common BSBA graduation requirements (detailed earlier under Degree Requirements), students in the economics major must meet the following requirements. Students must successfully complete courses taken as major requirements and major electives with a minimum CGPA of 2.00.

Major Learning Outcomes

Upon successful completion of the BSBA degree program with a major in economics, graduates will be able to:

- apply economic theory and principles to allocate resources and predict human and business behavior
- describe how various markets function and evaluate how government policy and regulation affect business and society in a global context
- deploy critical thinking, analytical, and self-learning skills to assess arguments and evidence and recommend solutions to business and economic problems
- demonstrate knowledge of quantitative methods and applications for data-informed decisions in economics
- communicate economic ideas and quantitative reasoning effectively, in writing and orally, using appropriate technology
- integrate knowledge from different business disciplines to identify and evaluate decision options, taking into consideration ethical and social responsibility
- manage tasks under varying conditions and take responsibility for decisions, with minimal guidance and in cooperation with others

Major Requirements
(15 credit hours)

- ECO 301 Intermediate Microeconomics
- ECO 302 Intermediate Macroeconomics
- ECO 330 Money and Banking
- ECO 351 Introduction to Econometrics
- ECO 401 Managerial Economics

Major Electives
(minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours in 300-level or above ECO courses not listed as major requirements and selected in consultation with their advisor.

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Proposed Sequence of Study
Bachelor of Science in Business Administration (BSBA)
Economics Major (third and fourth year)

THIRD YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ECO 301	Intermediate Microeconomics	3
	ECO 330	Money and Banking	3
	ENG 208	Public Speaking	3
	MGT 360	Business Ethics and Social Responsibility	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
		Total	**18**
Spring	BLW 301	Business Law	3
	ECO 302	Intermediate Macroeconomics	3
	ECO 351	Introduction to Econometrics	3
	ENG 225	Writing for Business	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Summer	BUS 397	Business Internship	0

FOURTH YEAR (27 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ECO 401	Managerial Economics	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MGT 406	Business Policy and Strategy	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**12**

Students who do not follow the recommended sequence of study might require more than four years to complete their program.

Major in Finance

This major offers students an integrative approach to the fields of banking and finance. Students will develop the analytical skills and theoretical framework necessary to analyze and understand the financial and banking sectors. Furthermore, this major provides the essential tools for understanding investments, capital markets, financial management and financial institutions. Students majoring in finance can structure their graduation requirements to obtain the knowledge needed to take the first level of the CFA exam upon graduation. The Department of Finance is an educational partner with the Chartered Financial Analysts (CFA) organization in the US.

In addition to meeting the common BSBA graduation requirements (detailed earlier under Degree Requirements), students in the finance major must meet the following requirements. Students must successfully complete courses taken as major requirements and major electives with a minimum CGPA of 2.00.

Major Learning Outcomes

Upon successful completion of the BSBA degree program with a major in finance, graduates will be able to:

- integrate knowledge of theories and models, techniques, and practices from all of the major business disciplines
- demonstrate a comprehensive understanding of key concepts of essential topics in Finance
- demonstrate in-depth knowledge and understanding of key concepts in financial markets and institutions
- apply various technical and analytical skills to solve finance-related issues
- evaluate and select the appropriate method to solve contemporary issues in finance
- propose solutions to adapt to the rapidly changing financial industry
- engage and work effectively in groups to evaluate financial situations and decisions and clearly communicate financial information to stakeholders
- accept responsibility, both at an individual and group level, for managing a range of complex and dynamic financial situations
- develop ethical reasoning and awareness of social responsibility in decision-making in finance

Major Requirements
(15 credit hours)

- FIN 310 Analysis of Financial Statements
- FIN 320 Banking
- FIN 330 Investments
- FIN 401 International Finance
- FIN 450 Corporate Finance

Major Electives
(minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours in courses selected in consultation with their advisor from the following:

- ACC 301 Intermediate Financial Accounting I
- ECO 340 Real Estate Economics or FIN 304 Real Estate Investing
- ECO 351 Introduction to Econometrics
- ECO 452 Economic Forecasting
- MTH 307 Theory of Risk
- any 300-level or above FIN courses not listed as major requirements.
- any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Proposed Sequence of Study
Bachelor of Science in Business Administration (BSBA)
Finance Major (third and fourth year)

THIRD YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENG 208	Public Speaking	3
	FIN 310	Analysis of Financial Statements	3
	FIN 330	Investments	3
	MGT 360	Business Ethics and Social Responsibility	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
		Total	**18**
Spring	BLW 301	Business Law	3
	ENG 225	Writing for Business	3
	FIN 320	Banking	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Summer	BUS 397	Business Internship	0

FOURTH YEAR (27 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	FIN 401	International Finance	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**15**
Spring	FIN 450	Corporate Finance	3
	MGT 406	Business Policy and Strategy	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**12**

Students who do not follow the recommended sequence of study might require more than four years to complete their program.

Major in Information Systems and Business Analytics

Digital technology has made it possible to collect, store, process, and analyze massive datasets to help businesses make better decisions. However, the problems faced by decision-makers in today's competitive business environment are often extremely complex. In order to lead, make informed decisions, and succeed, decision-makers need cross-disciplinary skills and knowledge to provide innovative solutions.

The Information Systems and Business Analytics (ISA) major represents the evolution of AUS's earlier major in Management Information Systems (MIS). The ISA major is intended to transform students into technologically competent data-based decision makers and future leaders of the emerging digital world. We equip our students with robust toolsets and techniques to help them understand and utilize data through information systems.

In addition to meeting the common BSBA graduation requirements (detailed earlier under Degree Requirements), students in the ISA major must meet the following requirements. Students must successfully complete courses taken as major requirements and major electives with a minimum CGPA of 2.00.

Major Learning Outcomes

Upon successful completion of the BSBA degree program with a major in information systems and business analytics, graduates will be able to:

- integrate knowledge and theories of multiple business disciplines with those of information systems and business analytics in the context of a global economy
- apply principles and theoretical concepts from information systems and business analytics to address organizational needs
- demonstrate knowledge of the design, delivery, use and management of information systems and business analytics solutions in contemporary organizational contexts
- use data and software to evaluate and critique business situations and managerial decisions
- demonstrate proficiency with multiple information systems and business analytics tools
- demonstrate highly developed written and oral communication skills, including using the latest business communication tools
- apply concepts and theories of ethics and social responsibility to the domains of information systems and business analytics
- demonstrate competence in making data-driven decisions using information systems and business analytics tools
- work independently as well as part of a team in a range of information systems and business analytics contexts
- assimilate learning over time into their skill set
- demonstrate competency in teamwork and leadership skills in the domains of information systems and business analytics

Major Requirements (15 credit hours)

- ISA 301 Fundamentals of Database Management or
  CMP 320 Database Systems
- ISA 303 Introduction to Systems Analysis and Design or
  COE 420 Software Engineering
- ISA 377 Data Visualization for Business
- ISA 388 Business Analytics
- ISA 405 Information Systems Strategy

Major Electives
(minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours in courses selected in consultation with their advisor from the following:

- ACC 380 Data Analytics for Accounting
- ECO 351 Introduction to Econometrics
- ECO 452 Economic Forecasting
- FIN 375 Trading and Financial Markets
- FIN 382 Introduction to Financial Technology
- MGT 315 Enterprise Resource Planning
- MGT 380 Project Management or
  EGM 362 Engineering Project Management
- MKT 302 Marketing Research
- MKT 360 Digital Marketing
- SCM 310 Management of the Supply Chain
- SCM 311 Logistics Management
- STA 401 Introduction to Data Mining
- UPL 302 Analysis of Spatial Phenomena
- any 300-level or above ISA courses not listed as major requirements
- any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Proposed Sequence of Study
Bachelor of Science in Business Administration (BSBA)
Information Systems and Business Analytics Major (third and fourth year)

THIRD YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENG 208	Public Speaking	3
	ISA 301 or CMP 320	Fundamentals of Database Management or Database Systems	3
	MGT 360	Business Ethics and Social Responsibility	3
	MJE	Major Elective	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
		Total	**18**
Spring	BLW 301	Business Law	3
	ENG 225	Writing for Business	3
	ISA 388	Business Analytics	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Summer	BUS 397	Business Internship	0

FOURTH YEAR (27 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ISA 303 or COE 420	Introduction to Systems Analysis and Design or Software Engineering	3
	ISA 377	Data Visualization for Business	3
	MJE	Major Elective	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**15**
Spring	ISA 405	Information Systems Strategy	3
	MGT 406	Business Policy and Strategy	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**12**

Students who do not follow the recommended sequence of study might require more than four years to complete their program.

Major in Management

This major is designed to prepare students for positions of leadership and responsibility in modern organizations. Management is approached as a professional career that embodies knowledge and concern for the ethical, human and global aspects of organizations, emphasizing a thorough grounding in a common body of knowledge as the basis for making sound decisions and meeting future challenges. The curriculum explicitly focuses on developing communication, leadership and problem-solving skills. In addition, the internship requirement allows students to develop insight and experience in the real world of business. Equipped with the intellectual tools and practical experience necessary to diagnose and resolve organizational challenges, and with effective communication skills, management students will be ready to excel in a wide variety of business settings.

In addition to meeting the common BSBA graduation requirements (detailed earlier under Degree Requirements), students in the management major must meet the following requirements. Students must successfully complete courses taken as major requirements and major electives with a minimum CGPA of 2.00.

Major Learning Outcomes

Upon successful completion of the BSBA degree program with a major in management, graduates will be able to:

- appraise the factual and theoretical knowledge of management in modern organizations
- evaluate human relationships and interactions in a work setting in both local and global contexts
- assess critically the significance of ethical issues and considerations in business activities
- evaluate organizational and market challenges by relying on relevant management knowledge
- select the appropriate methods and techniques to solve internal and external business challenges
- design solutions to address internal business challenges
- design solutions to address market-driven business challenges
- demonstrate competency in communication and leadership within a team engaged in management assignments

Major Requirements (15 credit hours)

- MGT 301 Organizational Behavior
- MGT 302 Managing Human Resources
- MGT 305 International Business
- MGT 380 Project Management
- MGT 403 Entrepreneurship

Major Electives (minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours in courses selected in consultation with their advisor from the following:

- any 300-level or above MGT courses not listed as major or core requirements
- any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Proposed Sequence of Study
Bachelor of Science in Business Administration (BSBA)
Management Major (third and fourth year)

THIRD YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENG 208	Public Speaking	3
	MGT 301	Organizational Behavior	3
	MGT 302	Managing Human Resources	3
	MGT 360	Business Ethics and Social Responsibility	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
		Total	**18**
Spring	BLW 301	Business Law	3
	MGT 305	International Business	3
	MGT 380	Project Management	3
	ENG 225	Writing for Business	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Summer	BUS 397	Business Internship	0

FOURTH YEAR (27 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MGT 403	Entrepreneurship	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MGT 406	Business Policy and Strategy	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**12**

Students who do not follow the recommended sequence of study might require more than four years to complete their program.

Major in Marketing

Students in this major study the role of marketing in modern organizations. The role of the marketer as the key connection between the product or service provider and the consumer requires a thorough understanding of marketing research and statistical techniques to make informed decisions about the design and development of marketing strategies. These strategies will encompass product and branding concepts, promotion and communication with customers, pricing and distribution. Additionally, the field of study will stress practical applications of marketing concepts in areas such as consumer behavior, sales management and retailing.

Students are encouraged to custom design their major by choosing from an array of marketing electives.

In addition to meeting the common BSBA graduation requirements (detailed earlier under Degree Requirements), students in the marketing major must meet the following requirements. Students must successfully complete courses taken as major requirements and major electives with a minimum combined GPA of 2.00.

Major Learning Outcomes

Upon successful completion of the BSBA degree program with a major in marketing, graduates will be able to:

- integrate knowledge of theories and models, techniques, and practices from all of the major business disciplines
- apply in-depth theoretical knowledge of marketing concepts
- develop a comprehensive understanding and critically analyze marketing situations
- apply appropriate methods and problem-solving techniques to investigate marketing situations
- implement appropriate research tools associated with the field of marketing
- develop advanced communication skills to present and explain innovative marketing solutions
- create strategic and tactical marketing programs within varying contexts
- demonstrate teamwork and leadership skills within the marketing domain
- apply theories of ethics and sustainability to marketing situations

Major Requirements
(15 credit hours)

- MKT 301 Consumer Behavior
- MKT 302 Marketing Research
- MKT 310 Marketing Communications
- MKT 360 Digital Marketing
- MKT 401 Marketing Strategy

Major Electives
(minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours in courses selected in consultation with their advisor from the following:

- ISA 377 Data Visualization for Business
- ISA 388 Business Analytics
- any 300-level or above MKT courses not listed as major requirements
- any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Proposed Sequence of Study
Bachelor of Science in Business Administration (BSBA)
Marketing Major (third and fourth year)

THIRD YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENG 208	Public Speaking	3
	MGT 360	Business Ethics and Social Responsibility	3
	MKT 301	Consumer Behavior	3
	MKT 360	Digital Marketing	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
		Total	**18**
Spring	BLW 301	Business Law	3
	ENG 225	Writing for Business	3
	MKT 302	Marketing Research	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Summer	BUS 397	Business Internship	0

FOURTH YEAR (27 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MKT 310	Marketing Communications	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MGT 406	Business Policy and Strategy	3
	MKT 401	Marketing Strategy	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**12**

Students who do not follow the recommended sequence of study might require more than four years to complete their program.

Major in Supply Chain Management

Supply chain management (SCM) involves the systematic planning, coordination and execution of processes necessary to produce and deliver goods and services efficiently. This major strikes a balance between business acumen and practical operations. Students learn how to optimize supply chain operations through resource allocation, inventory management and distribution planning. This is accomplished by analyzing complex supply networks, evaluating procurement strategies and applying cutting-edge logistics solutions. Students will also learn to devise and implement policies that enhance sustainability and mitigate risks. Additionally, they will delve into global trade, lean methodologies and customer relationship management, all while engaging with real-world case studies and simulations. This knowledge equips students with the essential skills and expertise to excel in various SCM roles, contributing to organizational success and customer satisfaction.

In addition to meeting the common BSBA graduation requirements (detailed earlier under Degree Requirements), students in the SCM major must meet the following requirements. Students must successfully complete courses taken as major requirements and major electives with a minimum combined GPA of 2.00.

Major Learning Outcomes

Upon successful completion of the BSBA degree program with a major in supply chain management, graduates will be able to:

- demonstrate specialized theoretical knowledge spanning the field of supply chain management
- utilize critical analysis, research methods and evaluative problem-solving techniques within the field of supply chain management
- apply analytical and technical skills to solve supply chain problems in both predictable and new contexts
- demonstrate highly developed advanced communication and information technology skills to present, explain and critique complex and unpredictable supply chain challenges
- manage innovatively at individual, team and leadership levels of supply chain contexts
- demonstrate full autonomy in technical and supervisory supply chain contexts
- demonstrate responsibility for the setting and achievement of group and individual outcomes
- develop professional supply chain management practice
- demonstrate ethical and sustainable supply chain management standards

Major Requirements (15 credit hours)

- SCM 310 Management of the Supply Chain
- SCM 311 Logistics Management
- SCM 345 Procurement Management
- SCM 415 Supply Chain Risk Management
- SCM 420 Sustainable Supply Chain Strategies

Major Electives (minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours in courses selected in consultation with their advisor from the following:

- any 300-level or above SCM courses not listed as major requirements
- a maximum of one course from the following proposed set of non-major electives:
  - ISA 377 Data Visualization for Business
  - ISA 388 Business Analytics
  - MGT 315 Enterprise Resource Planning
  - MGT 380 Project Management
  - MKT 307 Business to Business Marketing and Negotiations

Proposed Sequence of Study
Bachelor of Science in Business Administration (BSBA)
Supply Chain Management Major (third and fourth year)

THIRD YEAR (33 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ENG 208	Public Speaking	3
	MGT 360	Business Ethics and Social Responsibility	3
	SCM 310	Management of the Supply Chain	3
	SCM 311	Logistics Management	3
	GER-Core	Arts and Literature	3
	FRE	Free Elective	3
		Total	**18**
Spring	BLW 301	Business Law	3
	ENG 225	Writing for Business	3
	SCM 345	Procurement Management	3
	MJE	Major Elective	3
	GER-Core	Human Interaction and Behavior	3
		Total	**15**
Summer	BUS 397	Business Internship	0

FOURTH YEAR (27 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	SCM 415	Supply Chain Risk Management	3
	MJE	Major Elective	3
	MJE	Major Elective	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**15**
Spring	MGT 406	Business Policy and Strategy	3
	SCM 420	Sustainable Supply Chain Strategies	3
	MJE	Major Elective	3
	FRE	Free Elective	3
		Total	**12**

Students who do not follow the recommended sequence of study might require more than four years to complete their program.

Department of Accounting and Information Systems

Abed Al-Nasser Abdallah, Head

Faculty

Norita Binti Ahmad
Ramah Al Balawi
Eid Alotaibi
Harshvardhan Rajendra Prasad
Karen Hawa
Ashraf Khallaf
Meehyun Kim
Yara Mohammad
Kichan Nam
Mohamed Feras Salama
Mark Sallos
Marwa Soliman
Taisier Zoubi

The Department of Accounting and Information Systems aims to educate and prepare students for successful careers in the field of accounting. Students learn to compile, present, analyze, interpret and apply accounting and financial data in the decision-making process. Students pursuing the accounting major learn specific competencies to work in accounting and management in either the private or public sector.

AUS accounting graduates have the background needed for further study toward the Certified Public Accountant (CPA), Certified Management Accountant (CMA) and Certified Internal Auditor (CIA) professional designations.

The Department of Accounting and Information Systems also offers a Master of Science in Accounting degree program. For details, please refer to the *AUS Graduate Catalog*.

BSBA–Major in Accounting

Faculty members from the Department of Accounting and Information Systems provide instruction in the Bachelor of Science in Business Administration (BSBA) degree program. For more information on the accounting major within the BSBA degree program, please see the previous section on the BSBA degree program.

BSBA–Major in Information Systems and Business Analytics

Faculty members from the Department of Accounting and Information Systems provide instruction in the Bachelor of Science in Business Administration (BSBA) degree program. For more information on the information systems and business analytics major within the BSBA degree program, please see the previous section on the BSBA degree program.

Minor in Accounting

This minor provides graduates with a basic background in financial and managerial accounting. It is a complementary field of study for students majoring in finance or information systems and business analytics. It is also an attractive choice for other students who wish to obtain the accounting background needed in the business world, or to begin graduate study toward a professional designation such as a CPA or CMA.

Students applying to this minor should have successfully completed a minimum of 60 credit hours and be in good academic standing.

Students seeking a minor in accounting must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - three credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor

provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(3 credit hours)

Students must successfully complete the following course:

- ACC 301 Intermediate Financial Accounting I

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following:

- any 300-level or above ACC courses not listed as minor requirements
- any approved 300-level or above ACC special topic courses. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Accelerated Master's Program (AMP) students may use a maximum of six credit hours from approved graduate-level courses, successfully completed while in the AMP, towards meeting the minor electives requirement. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in Taxation

The minor aims to provide students with a strong understanding of both UAE and US taxation frameworks, preparing them for careers in tax consultancy, corporate tax management and public sector roles. This program will equip students with the competencies needed to navigate the evolving tax environment and respond to the growing demand for tax professionals in the UAE. The minor addresses the growing demand for tax literacy across business and non-business disciplines, particularly in light of the expanding tax environment and regulatory complexity.

Students applying to this minor should have successfully completed a minimum of 60 credit hours and be in good academic standing.

BSBA students majoring in accounting are not eligible to pursue this minor.

Students seeking a minor in taxation must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - nine credit hours of minor requirements
  - a minimum of three credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor must be successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level must be successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(9 credit hours)

Students must successfully complete the following courses:

- ACC 301 Intermediate Financial Accounting I
- ACC 307 UAE Corporate Tax
- ACC 308 UAE Value Added Tax

Minor Electives
(minimum of 3 credit hours)

Students must successfully complete a minimum of three credit hours in courses selected from the following:

- ACC 305 Income Tax I
- ACC 306 Income Tax II
- ACC 410 Auditing

Department of Economics

Jay Squalli, Head

Faculty

Bassam Abu Al-Foul
Mohammad Arzaghi
Emin Gahramanov
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Ismail Genc
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Adrian Lopes
Sanket Roy
Matthias Ruth
Dina Tasneem
Hugo Toledo
Ajalavat Viriyavipart
Javed Younas

The Bachelor of Arts (BA) in Economics is designed to give students an in-depth understanding of how individuals acting as consumers, as business managers, as participating citizens within a society and as government agents make decisions. Students who graduate with a BA degree in economics will have the knowledge and analytical skills required to understand and solve complex business and social problems.

Like the BA in economics, the BSBA in economics is designed to provide students with an understanding of how people make choices in all aspects of human activity. The BSBA, however, provides greater focus on the choices people make in a business context. Students with the BSBA major in economics will acquire the analytical tools required to become successful managers of firms or not-for-profit organizations.

Bachelor of Arts in Economics (BAE)

Economics encompasses a diverse range of fields including international trade, finance, development and growth, urban and regional economics, industrial organization, labor economy, banking and monetary economics, natural resources and environmental economics. All, however, are approached with the same set of analytical tools that characterize the economic way of thinking.

Indeed, the economics discipline is distinguished by a small set of powerful ideas that can be applied to a variety of problems from a wide range of topics. These fundamental ideas are incentives, equilibrium and efficiency. From an observation, economists model a real-world situation and test the model empirically to arrive at the model's implications, and use those implications and make recommendations for policy and institutional reform. While economists do not attempt to establish society's goals, they do examine the consequences of different ways of pursuing them. Economic principles, when applied, can lead to outcomes that benefit all of society.

An economics degree provides students with skills that are valuable for a number of careers in which critical thinking and careful decision making are required. It provides a firm foundation for a career in public policy analysis, banking, finance, market analysis and business management.

The purpose of the Bachelor of Arts in Economics (BAE) degree program is to

provide students with strong undergraduate training in the theory and application of economics built upon the foundation of education in the liberal arts and science. The program aims to prepare students for rewarding employment in business and government, nationally or internationally, and, if they choose, for graduate study in business, law, economics and other advanced professional degrees at internationally recognized universities.

These functions of the BAE degree program unite in a single mission: the delivery of an American-standard undergraduate economics degree program offering qualifications that are readily recognized and understood internationally by employers and graduate programs.

The commitment to an American standard is achieved by benchmarking the content of economics courses to peer institutions and remaining current as the discipline evolves. Success requires faculty members who have sound training in the major specializations in economics and who actively pursue research.

Program Goals

Economics students learn to think creatively about the economic concerns facing the world today. Students learn to apply a variety of theoretical perspectives to issues of economic efficiency, economic growth, globalization, wealth and poverty, individual freedom, discrimination, cultural values and environmental concerns. The strategic objectives of the BAE degree program are to:

- maintain a high-quality curriculum that remains current as the discipline evolves
- promote value-added research and intellectual contributions
- develop in students a competence in critical thinking, communication and information technology
- develop in students a sense of awareness of the broad applications of economics in everyday life

Program Outcomes

The BAE degree program provides a solid knowledge of economic theory and policy to prepare students for diverse career opportunities in public and private sectors and for future studies in economics and related fields. Upon successful completion of the program, economics majors will be able to:

- demonstrate the relationship between markets, human behavior, resource allocation and growth
- explain the conditions for market efficiency and the causes of market failures
- describe the goals and impact of government interventions in markets
- apply economic theory to a range of economic, social and business problems, analytically and professionally
- use quantitative methods to evaluate economic and social problems and policies
- conduct independent supervised research using economic methodology
- communicate economic analysis effectively both orally and in writing

Distinctive Features of the Program

Students pursuing the BAE degree program at AUS learn about contemporary economics and its place within the wider social sphere. Students' understanding of economic principles helps them to analyze economic trends and government responses to them.

Students have the opportunity to develop good analytical and problem-solving skills.

By exploring economic theories that help explain human behavior, AUS students learn to develop their own arguments and to assess their own values regarding the issues discussed in class.

Admission to the Program

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

Formal admission to the program requires meeting the following minimum requirements:

- successful completion of 60 credit hours in undergraduate course work. Credit hours may not include preparatory 00X courses or English Bridge Program courses
- a minimum CGPA of 2.00
- successful completion of ECO 201 and ECO 202

To be eligible for formal admission consideration, students who meet the above requirements must submit a Change of Major form to the Office of the Associate Dean for Undergraduate Programs by the last day of the 12th week of classes of the semester in which the student will complete 60 credit hours. The approved form must be filed with the Office of the Registrar by the end of the add and drop period of the semester in which it will be effective.

AUS students transferring into the program must have a minimum cumulative GPA of 2.00 and the permission of the associate dean. Further conditions could apply. For information, please check with the head of the department.

Degree Requirements

To qualify for graduation with a Bachelor of Arts in Economics degree, students must successfully complete the following minimum requirements:

- a minimum of 120 credit hours, including:
  - a minimum of 36 credit hours of general education requirements
  - the innovation and entrepreneurship requirement: three credit hours
  - 21 credit hours of major requirements with a 2.00 minimum GPA including an approved internship for a minimum duration of five weeks
  - a minimum of 42 credit hours of major electives
  - a minimum of 18 credit hours of free electives
- a minimum CGPA of 2.00

Accelerated Master's Program (AMP) students may use a maximum total of six credit hours from graduate-level courses, successfully completed while in the AMP, towards meeting the major electives and/or free electives requirements. For details on the AMP, please refer to the Accelerated Master's Program section earlier in this catalog.

Graduation residence requirements must be met. For details, refer to Graduation Requirements in the Academic Policies and Regulations section earlier in this catalog.

General Education Requirements (minimum of 36 credit hours)

Students in the BAE degree program must successfully complete a minimum of 36 credit hours as follows:

- a minimum of 15 credit hours in courses meeting the following requirements:
  - history and culture of the Arab world requirement: three to six credit hours
  - culture in a critical perspective requirement: three to six credit hours
  - arts and literature requirement: three to six credit hours
  - human interaction and behavior requirement: three to six credit hours
- natural sciences requirement: a minimum of six credit hours in courses meeting this requirement
- mathematics requirement: MTH 102 or MTH 103
- statistics requirement: satisfied through QBA 201
- communication requirement: a minimum of 12 credit hours in 100-level or above writing (WRI) courses or 200-level and above English (ENG) courses meeting this requirement, including ENG 204 and ENG 208

- ethical understanding requirement: satisfied through ECO 490
- discipline-specific writing intensive course requirement: satisfied through ECO 490
- oral proficiency requirement: satisfied through ECO 490
- information literacy requirement: satisfied through WRI 102 and ENG 204
- computer literacy requirement: satisfied through QBA 201

Innovation and Entrepreneurship Requirement (3 credit hours)

Students must successfully complete the following course:

- IEN 301 Innovation and Entrepreneurship Mindset

Major Requirements (21 credit hours)

Students must successfully complete the following required courses with a 2.00 minimum GPA:

- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics
- ECO 301 Intermediate Microeconomics
- ECO 302 Intermediate Macroeconomics
- ECO 351 Introduction to Econometrics
- ECO 490 Senior Project in Economics
- QBA 201 Quantitative Business Analysis

Internship

Students in the BAE degree program must successfully complete a minimum five-week internship approved by SBA. The internship is normally completed in the summer preceding the senior year. BUS 397 Business Internship fulfills this requirement. For details on internship eligibility and registration, please refer to Internship Registration under Registration and Course Information in the Academic Policies and Regulations section of the catalog.

Major Electives (minimum of 42 credit hours)

Economics Courses (minimum of 27 credit hours)

Students must successfully complete a minimum of 27 credit hours from ECO courses at the 300-level or above not listed under the major requirements.

Related Courses (minimum of 15 credit hours)

Students must successfully complete a minimum of 15 credit hours in courses selected from the following fields. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Students may choose to satisfy part or all of the related course requirements by completing a minor in one of the related fields listed hereafter. A student pursuing the Bachelor of Arts in Economics may not minor in economics.

- accounting
- anthropology
- computer science
- economics (any course at the 300 level or above)
- finance
- history (any course at the 200 level or above)
- information systems and business analytics
- international studies
- management
- marketing
- mathematics (any course other than MTH 100 and MTH 111)
- political science
- psychology
- statistics (any course other than STA 201 or STA 202)
- supply chain management

AMP students may use approved graduate-level courses, successfully completed while in the AMP, towards meeting the major electives requirement. In meeting this requirement, the graduate-level courses must comply with the major electives' distribution described above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Free Electives (minimum of 18 credit hours)

Students must successfully complete a minimum of 18 credit hours of free electives, excluding MTH 100.

AMP students may use graduate-level courses, successfully completed while in the AMP, towards meeting the free electives requirement.

Proposed Sequence of Study
Bachelor of Arts in Economics (BAE)

FIRST YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ECO 201	Principles of Microeconomics	3
	WRI 101	Academic Writing I	3
	GER-Core	History and Culture of the Arab World	3
	GER-Core	Course Selected from General Education Core Requirements	3
	GER-SCI	Natural Sciences	3
		Total	**15**
Spring	ECO 202	Principles of Macroeconomics	3
	MTH 102	Calculus for Business	3
	QBA 201	Quantitative Business Analysis	3
	WRI 102	Academic Writing II	3
	GER-SCI	Natural Sciences	3
		Total	**15**

SECOND YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	ECO 301	Intermediate Microeconomics	3
	MJE	Economics Course	3
	ENG 204	Advanced Academic Writing	3
	GER-Core	Culture in a Critical Perspective	3
	FRE	Free Elective	3
		Total	**15**
Spring	ECO 302	Intermediate Macroeconomics	3
	ENG 208	Public Speaking	3
	MJE	Economics Course	3
	MJE	Related Course	3
	GER-Core	Arts and Literature	3
		Total	**15**

THIRD YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MJE	Economics Course	3
	ECO 351	Introduction to Econometrics	3
	IEN 301	Innovation and Entrepreneurship Mindset	3
	MJE	Related Course	3
	FRE	Free Elective	3
		Total	**15**
Spring	MJE	Economics Course	3
	MJE	Economics Course	3
	MJE	Related Course	3
	GER-Core	Human Interaction and Behavior	3
	FRE	Free Elective	3
		Total	**15**
Summer	BUS 397	Business Internship	0

FOURTH YEAR (30 credit hours)			
Term	**Course #**	**Course Title**	**Credit Hours**
Fall	MJE	Economics Course	3
	MJE	Economics Course	3
	MJE	Economics Course	3
	MJE	Related Course	3
	FRE	Free Elective	3
		Total	**15**
Spring	ECO 490	Senior Project in Economics	3
	MJE	Economics Course	3
	MJE	Related Course	3
	FRE	Free Elective	3
	FRE	Free Elective	3
		Total	**15**

Students who do not follow the recommended sequence of study might require more than four years to complete their program.

BSBA–Major in Economics

Faculty members from the Department of Economics provide instruction in the Bachelor of Science in Business Administration (BSBA) degree program. For more information on the economics major within the BSBA degree program, please see the previous section on the BSBA degree program.

Minor in Economics

This minor complements the degree program of students in other majors and is designed to help them develop a basic understanding of the principles and applications of economics. By pursuing this minor, students will develop an understanding of microeconomic and macroeconomic principles, the role of markets, and the effects of government regulation and policy on economic behavior.

Students applying to this minor should have successfully completed a minimum of 30 credit hours and be in good academic standing.

Students seeking a minor in economics must successfully complete the following requirements:

- a minimum of 18 credit hours including:
  - six credit hours of minor requirements
  - a minimum of 12 credit hours of minor electives
- a minimum of nine credit hours of the 18 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credits hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(6 credit hours)

Students must successfully complete the following courses:

- ECO 201 Principles of Microeconomics
- ECO 202 Principles of Macroeconomics

Minor Electives
(minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours in any 300-level or above ECO courses not listed as minor requirements.

Accelerated Master's Program students (AMP) may use a maximum of six credit hours from approved graduate-level courses, successfully completed while in the AMP, towards meeting the minor electives requirement. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Students should consult with their advisors when choosing their minor electives.

Department of Finance

Mohsen Saad, Head

Faculty

Iness Aguir
Osamah AlKhazali
Narjess Boubakri
Abdelaziz Chazi
Efe Cotelioglu
Kimberley Gleason
Donghyeok Jang
Destan Kirimhan
Ali Mirzaei
Anis Samet
Zaher Zantout
Yafei Zhang

The Department of Finance aims to educate and prepare students for successful careers in the field of finance. Studying finance at AUS provides students with the intellectual tools to succeed in careers in financial management, banking, investments, real estate and other sectors of the global financial world.

The Department of Finance has partnered with the CFA Institute and has incorporated the Chartered Financial Analyst (CFA) Level I curriculum in its course offerings.

The Department of Finance also offers a Master of Science degree in Finance. For details, please refer to the *AUS Graduate Catalog*.

BSBA–Major in Finance

Faculty members from the Department of Finance provide instruction in the Bachelor of Science in Business Administration (BSBA) degree program. For more information on the finance major within the BSBA degree program, please see the previous section on the BSBA degree program.

Minor in Finance

This minor provides a basic background in the fields of banking and finance. It is a complementary field of study for students majoring in accounting economics or marketing. It is also an attractive choice for other students who wish to obtain the finance background needed in the business world, or to begin graduate study toward a professional designation such as the CFA.

Students applying to this minor should have successfully completed a minimum of 60 credit hours and be in good academic standing.

Students seeking a minor in finance must successfully complete the following requirements:

- a minimum of 18 credit hours including:
  - six credit hours of minor requirements
  - a minimum of 12 credit hours of minor electives
- a minimum of nine credit hours of the 18 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(6 credit hours)

Students must successfully complete the following courses:

- FIN 201 Fundamentals of Financial Management
- FIN 330 Investments

Minor Electives
(minimum of 12 credit hours)

Students must successfully complete a minimum of 12 credit hours in courses selected from the following:

- ACC 301 Intermediate Financial Accounting I
- ECO 340 Real Estate Economics or ECO 351 Introduction to Econometrics or ECO 452 Economic Forecasting
- any 300-level or above FIN courses not listed as minor requirements
- any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in Fintech

The minor in fintech exposes students to the current changes in the finance industry. It is designed to introduce students to the unique fintech world and to support their personal growth.

Students applying to this minor should have successfully completed a minimum of 30 credit hours and be in good academic standing.

BSBA students majoring in finance are not eligible to pursue this minor.

Students seeking a minor in fintech must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - six credit hours of minor requirements
  - six credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying

the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(6 credit hours)

Students must successfully complete the following courses:

- FIN 320 Banking
- FIN 382 Introduction to Financial Technology

Minor Electives
(6 credit hours)

Students must successfully complete two elective courses, selecting one course from each of the following groups of elective courses.

Finance Courses
(3 credit hours)

Students must successfully complete one of the following finance courses:

- FIN 330 Investments
- FIN 340 Financial Crime
- FIN 365 Cryptocurrencies

Data Analytics, Modeling and Entrepreneurship Courses
(3 credit hours)

Students must successfully complete one course selected from the following:

- ACC 380 Data Analytics for Accounting
- CMP 333 Artificial Intelligence
- CMP 466 Machine Learning and Data Mining
- FIN 375 Trading and Financial Markets
- FIN 389 Advanced Financial Modeling
- FIN 408 Entrepreneurial Finance
- FIN 430 Financial Forecasting
- ISA 383 Python for Business
- ISA 388 Business Analytics

Department of Management, Strategy and Entrepreneurship

Virginia Bodolica, Head

Faculty

Hasnan Baber
Omar Belkhodja
Tor Brodtkorb
Ahmad El-Assadi
Illir Hajdini
Alaa Hamade
John E. Katsos
Ali Khawaja
Jamal Tanios Maalouf
Hania Mahmoud
Stefania Mariano
Patrick McClelland
Atilla Onuklu
Rodrigo Basco Rodriguez
Muntasir Sham
Daniel Simonet
Milena Tekeste
Marie-France Waxin

The Department of Management, Strategy and Entrepreneurship aims to educate and prepare students for successful careers at the managerial level in the private, public and non-profit sectors. Students learn the leadership and management skills and techniques that are essential to help corporations and organizations achieve their goals and objectives, and the methods used by policy makers to shape and improve communities and people's lives.

The department offers a BSBA major in management. With its balanced emphasis on developing both "hard" and "soft" skills and an appreciation of the challenges posed by cultural diversity and a global marketplace, the courses offered by this department provide a solid foundation for either entry-level managerial positions or graduate study in MBA or business-subject PhD programs.

BSBA–Major in Management

Faculty members from the Department of Management, Strategy and Entrepreneurship provide instruction in the Bachelor of Science in Business Administration (BSBA) degree program. For more information on the management major within the BSBA degree program, please see the previous section on the BSBA degree program.

Minor in Entrepreneurship and Innovation

The minor in entrepreneurship and innovation is designed to educate the next generation of entrepreneurs and innovators to contribute to the creation of economic and social value for Sharjah, the UAE and the world. Students will learn relevant skills through theoretical and practical instruction. The proposed minor provides students with essential entrepreneurship and innovation knowledge and prepares them to create, design, and implement innovative ideas for securing progress in the venturing process.

Students applying to this minor should have successfully completed a minimum of 60 credit hours and be in good academic standing.

BSBA students majoring in management are not eligible to pursue this minor.

Students seeking a minor in entrepreneurship and innovation must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - nine credit hours of minor requirements
  - a minimum of three credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor must be successfully completed in residence at AUS.
- a minimum of six credit hours of the courses for the minor at or above the 300 level must be successfully completed in residence at AUS.
- a minimum GPA of 2.00 in courses completed to satisfy the minor.

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(9 credit hours)

- MGT 313 Managing Innovation and Change
- MGT 403 Entrepreneurship
- MGT 450 Business Venture with Sheraa

Minor Electives
(minimum of 3 credit hours)

Students must successfully complete a minimum of three credit hours in courses selected from the following:

- DES 170 Introduction to Product Design
- DES 370 Introduction to Prototyping
- FIN 408 Entrepreneurial Finance
- MGT 301 Organizational Behavior
- MGT 303 Management and Leadership Development
- MGT 310 Fundamentals of Family Business
- MGT 317 Management for Sustainability

- MGT 404 Social Entrepreneurship
- MKT 303 E-Commerce or ISA 305 E-Commerce
- MKT 360 Digital Marketing
- MKT 383 New Product Development

Minor in Management

This minor is designed for students outside the major in management or outside the School of Business Administration who desire to increase their networking skills, expand their business knowledge, increase their career opportunities, improve their readiness for corporate life and support their candidacy for an MBA or other graduate programs.

Students applying to this minor should have successfully completed a minimum of 60 credit hours and be in good academic standing.

Students seeking a minor in management must successfully complete the following requirements:

- a minimum of 12 credit hours of minor requirements
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements (12 credit hours)

Students must successfully complete a minimum of 12 credit hours in any 300-level or above MGT courses.

Department of Marketing and Supply Chain Management

Abdelkader Daghfous, Head

Faculty

Linda Angell
Jean Boisvert
Prakash Chathoth
George Christodoulides
Aaron Gazley
M. Sajid Khan
Ashutosh Samadhiya
Mona Mrad
Abroon Qazi
Rania Semaan

The Department of Marketing and Supply Chain Management aims to educate and prepare students for successful business careers at the managerial level in the private and public sectors. Students can tailor their education to prepare for a career in information systems and business analytics, marketing and supply chain management. The department offers a BSBA major in information systems and business analytics, a BSBA major in marketing and a BSBA major in supply chain management.

In the marketing major, students learn the marketing skills of developing branding, pricing, promotions and distribution channel strategies which are essential to help organizations achieve their goals and objectives. The field of marketing stresses the practical application of concepts in areas such as consumer behavior, organizational buying behavior, service quality and delivery, electronic marketing, retailing, logistics/supply chain, and international marketing.

In the information systems and business analytics (ISA) major, students learn about information and communication technologies, business processes, logistics and scientific principles directed to the design, implementation and management of information systems. The field of ISA stresses the practical application of computer technologies in areas such as business programming, software development, data communications and networking, database management, systems analysis and design, knowledge management and e-business. The knowledge gained in this major enables graduates to harness the power of technology as a source of competitive advantage.

In the supply chain management major, students focus on the efficient production and delivery of goods and services. Students learn to optimize operations through resource allocation, inventory management and distribution planning. Key components are analyzing supply networks, evaluating procurement strategies and implementing logistics solutions. Sustainability practices, risk mitigation, global trade dynamics and customer relationship management are also covered. Through hands-on learning with case studies and simulations, students acquire the skills to excel in various SCM roles, contributing to organizational success and customer satisfaction.

BSBA–Major in Marketing

Faculty members from the Department of Marketing and Supply Chain Management provide instruction in the Bachelor of Science in Business Administration (BSBA) degree program. For more information on the marketing major within the BSBA degree program, please see the previous section on the BSBA degree program.

BSBA–Major in Supply Chain Management

Faculty members from the Department of Marketing and Supply Chain Management provide instruction in the Bachelor of Science in Business Administration (BSBA) degree program. For more information on the supply chain management major within the BSBA degree program, please see the previous section on the BSBA degree program.

Minor in Luxury Marketing

The minor in luxury marketing is designed to introduce students to the unique world of luxury and equip them with the specialist knowledge, expertise and skills required to succeed in this fast-growing market. Students will learn about the specificities of the luxury industry that necessitate a distinctive approach to marketing by turning conventional marketing principles "upside down."

The luxury marketing minor can be an attractive choice for a wide range of students as it prepares them for various career opportunities such as luxury brand management, luxury retailing, fashion marketing, luxury hospitality and services, and more.

Students seeking a minor in luxury marketing must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - six credit hours of minor requirements
  - a minimum of six credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the

300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(6 credit hours)

Students must successfully complete two of the following courses:

- MKT 354 Luxury Marketing
- MKT 381 Fashion Marketing
- MKT 405 Luxury Brand Management

Minor Electives
(minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses selected from the following:

- MKT 201 Fundamentals of Marketing (for non-BSBA majors)
- MKT 305 Retail Marketing
- MKT 365 Services Marketing
- MKT 372 Tourism Destination Marketing
- SCM 310 Management of the Supply Chain

Minor in Management Information Systems

The minor in management information systems (MIS) prepares graduates for professional careers that rely on the application of information technology to business processes and managerial decision-making. An understanding of the principles of data storage, analysis, communication and networking offers students from a variety of business, technical and social science disciplines the skills necessary to stay in step with rapid changes in the role of IT in the world economy.

Students applying to this minor should have successfully completed a minimum of 60 credit hours and be in good academic standing.

Students seeking a minor in MIS must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - three credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(3 credit hours)

Students must successfully complete the following course:

- ISA 301 Fundamentals of Database Management or
  CMP 320 Database Systems

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following:

- ACC 380 Data Analytics for Accounting
- FIN 382 Introduction to Financial Technology
- ISA 201 Fundamentals of Information Systems and Business Analytics
- MDC 309 Social Media Content and Strategy
- MDC 424 Social Media Strategies
- MGT 315 Enterprise Resource Planning
- MGT 380 Project Management or EGM 362 Engineering Project Management
- MKT 303 E-Commerce
- MKT 360 Digital Marketing
- SCM 310 Management of the Supply Chain
- UPL 302 Analysis of Spatial Phenomena
- any 300-level or above ISA courses.

Minor in Marketing

This minor is designed to provide a student with the basic coverage of key marketing concepts. The minor is intended for students whose major discipline involves interaction with customers in some way. The minor will demonstrate how customer feedback can be used in a variety of disciplines and careers.

Students applying to this minor should have successfully completed a minimum of 60 credit hours and be in good academic standing.

Students seeking a minor in marketing must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - three credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives or general education requirements of the student's

degree program graduation requirements.

- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(3 credit hours)

Students must successfully complete the following course:

- MKT 301 Consumer Behavior

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following:

- ISA 305 E-Commerce
- ISA 377 Data Visualization for Business
  or
  ISA 388 Business Analytics
- any approved 300-level or above MKT courses. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.
- any approved special topic courses at the 300 level or above. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.

Minor in Supply Chain Management

The minor in supply chain management (SCM) prepares graduates to pursue careers in the running of a firm's operations to deliver products and services to customers.

The minor focuses on supply chain management skills that develop timely and effective business operations and enable firms to capitalize on new technologies. In particular, the minor promotes the integration of information technologies that create strong entrepreneurial opportunities for firms.

SCM entails the understanding of how manpower, equipment and other resources need to be organized for a firm to be successful. The minor highlights the importance of multinational supply chains and logistics that are critical to the success of the UAE given its location as a worldwide trade hub. The role of quality and service delivery in operations is incorporated into the minor since they are vital to the success of firms competing in a global marketplace.

Students applying to this minor should have successfully completed a minimum of 60 credit hours and be in good academic standing.

Students seeking a minor in supply chain management must successfully complete the following requirements:

- a minimum of 12 credit hours including:
  - six credit hours of minor requirements
  - a minimum of six credit hours of minor electives
- a minimum of six credit hours of the 12 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- Courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(6 credit hours)

Students must successfully complete the following courses:

- SCM 310 Management of the Supply Chain
- SCM 311 Logistics Management

Minor Electives
(minimum of 6 credit hours)

Students must successfully complete a minimum of six credit hours in courses selected from the following:

- ISA 303 Introduction to Systems Analysis and Design
- ISA 305 E-Commerce or
  MKT 303 E-Commerce
- ISA 377 Data Visualization for Business
- ISA 388 Business Analytics
- MGT 315 Enterprise Resource Planning
- MGT 380 Project Management
- MKT 307 Business to Business Marketing and Negotiations
- MKT 365 Services Marketing
- SCM 202 Operations Management (for non-BSBA majors)
- any 300-level or above SCM courses not listed as requirements for the minor

Other Minors Offered by the School of Business Administration

Minor in Business Administration

The Minor in Business Administration provides basic, complementary knowledge in the field of business. The minor is also attractive to undergraduate students who intend to pursue graduate studies in business administration, as it supports their candidacy and helps in exempting them from preparatory courses.

Students applying to the business administration minor must have successfully completed 30 credit hours and be in good academic standing.

The minor is not open to BSBA students and to students majoring in design management.

Students who declare a minor in business administration are assigned an academic advisor by the Office of the Associate Dean for Undergraduate Programs.

Students seeking a minor in business administration must successfully complete the following requirements:

- a minimum of 18 credit hours including:
  - nine credit hours of minor requirements
  - a minimum of nine credit hours of minor electives
- a minimum of nine credit hours of the 18 credit hours required for the minor successfully completed in residence at AUS
- a minimum of six credit hours of the courses for the minor at or above the 300 level successfully completed in residence at AUS
- a minimum GPA of 2.00 in courses completed to satisfy the minor

Courses used to satisfy the student's degree program's graduation requirements can be used towards meeting the requirements of the minor as follows:

- At least 12 credit hours of courses used to satisfy the requirements of the minor do not double count towards meeting the core requirements, major requirements, major electives, concentration requirements, concentration electives or general education requirements of the student's degree program graduation requirements.
- Free elective courses can double count towards meeting the minor's required and elective courses.

Students pursuing two minors must meet the requirements of both minors. Courses used to satisfy the requirements of one minor can double count towards satisfying the requirements of the second minor provided that, at a minimum, 12 credit hours are not double counting.

Minor Requirements
(9 credit hours)

Students must successfully complete the following courses:

- BUS 100 Introduction to Business
- any two 200-level courses from:
  - ACC 201 Fundamentals of Financial Accounting
  - ECO 201 Principles of Microeconomics
    or
    ECO 202 Principles of Macroeconomics
  - FIN 201 Fundamentals of Financial Management
  - ISA 201 Fundamentals of Information Systems and Business Analytics
  - MGT 201 Fundamentals of Management
  - MKT 201 Fundamentals of Marketing
  - SCM 202 Operations Management

Minor Electives
(minimum of 9 credit hours)

Students must successfully complete a minimum of nine credit hours in courses selected from the following:

- any 300-level or above SBA courses. BAE students are restricted to non-ECO 300-level or above SBA courses.
- any approved special topic courses at the 300 level or above. BAE students are restricted to non-ECO approved special topic courses. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications.



College of Architecture, Art and Design

ARC Architecture

ARC 201 Architectural Design Studio I (12-0-6). Addresses 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 design: function, experience, structure, construction and context. Digital media are integral to the studio. Restricted to students formally admitted to the architecture major. Repeatable only once. Prerequisites: DES 112, DES 121, DES 122, DES 132, MTH 003 or MTH 111 or MTH 103, and WRI 101 or WRI 102. Lab/Tech fee rate B applies.

ARC 202 Architectural Design Studio II (12-0-6). Continues the content and purpose of ARC 201 with increased emphasis on design development and physical and technical resolution. Digital media are integral to the studio. Repeatable only once. Prerequisite: ARC 201. Lab/Tech fee rate B applies.

ARC 221 Pre-Modern Architecture and Urban Form (3-0-3). Covers factors influencing the production of architecture and urban form through the study of select buildings and cities within the context of world history from the ancient world to 1850 CE. Focuses on ways in which theoretical knowledge and practical design principles were applied across cultures. Addresses interrelationships between diverse architectural and urban traditions through comparative analyses of historical buildings and cities. Prerequisite: DES 122.

ARC 222 Modern Architecture and Urban Form (3-0-3). Introduces knowledge and design principles fundamental to an understanding of the architecture and urban form from 1850 to 1960. Integrates history and theory focusing on a selection of significant issues proceeding topically rather than chronologically. Considers technological changes and regional influences and contributions, concludes with the debates that gave rise to Postmodern Architecture. Prerequisite: DES 122.

ARC 225 Islamic Art and Architecture (3-0-3). Concentrates on common and regional elements of Arab and Islamic material culture. Follows developments from formation of an architectural language to diverse regional expressions in calligraphy, ceramics, metals, carpets and other media of artistic work. Relates stylistic phenomena to underlying spiritual and intellectual intent. Prerequisite: WRI 102.

ARC 232 Materials and Methods I (3-0-3). Offers an in-depth review of building materials and their properties as they relate to methods of construction and contemporary construction practices used to prepare sites and to erect the building's basic structure. Covers site preparation, foundations, concrete, steel and timber structures, and masonry work. Discusses the basics of producing construction drawings. Prerequisite: ARC 201 or IDE 201.

ARC 233 Introductory Techniques in Digital Fabrication (4-0-3). Introduces the concepts, tools and methods used in digital fabrication practices. Covers the fundamental skills necessary for exploring the role of digital fabrication tools in architecture. Prerequisite: DES 132. Lab/Tech fee rate A applies.

ARC 237 Introductory Techniques in Material Fabrication (4-0-3). Introduces the concepts, tools and methods used in material fabrication practices. Explores the relationship between material properties, material processes and design through hands-on fabrication exercises. Prerequisite: DES 131. Lab/Tech fee rate A applies.

ARC 245 Introduction to Building Construction and Systems (3-0-3). Provides a general understanding of the process through which a building is put together. Introduces the basics of constructing a building, from site preparation to surface finishing. Covers the main characteristics of plumbing, heating, ventilation, air-conditioning, electric and fire protection systems in buildings. Not open to BArch and BID students. Prerequisite: sophomore I standing.

ARC 265 Fundamentals of Digital Design (4-0-3). Introduces the fundamental concepts, tools and methods of digital design. Covers software, file management and output strategies related to 2D drafting, 3D modeling and rendering. Prerequisite: DES 132. Lab/Tech fee rate A applies.

ARC 271 Introduction to Landscape (3-0-3). Introduces the fundamental cultural, ecological, spatial and technical aspects of landscape design and construction. Includes a range of scales, from the urban and infrastructural to the tactile and botanical, most relevant to the discipline of architecture. Investigates the environmental and climatic forces that impose pragmatic challenges to site construction and occupation. Emphasizes the cultural and vernacular traditions that influence regional and historical land-use patterns and the spatial integration of interior and exterior inhabitation. Prerequisite: DES 101 or DES 131.

ARC 281 Architectural Principles (3-0-3). Provides an overview of the fundamental formal, cultural and environmental issues specific to the discipline of architecture and interior design. Emphasizes two- and three-dimensional composition, organizational strategies, and the basic syntax of spatial configuration. Examines the effect of light, air, weather and orientation on spatial experience in the built environment with a focus on building forms and interiors that incorporate a passive and site-specific response to environmental conditions. Prerequisite/concurrent: ARC 201 or IDE 201.

ARC 301 Architectural Design Studio III (12-0-6). Advances the fundamentals of the making of architectural form based on concepts derived from space, structure and building construction. Studio-based projects emphasize design strategies for small, multilevel, infill buildings with conventional, short-span structural systems. Repeatable only once. Prerequisites: ARC 202 or IDE 202, and PHY 104.

ARC 302 Architectural Design Studio IV (12-0-6). Includes studio-based projects with emphasis on the tectonics of building structure and envelope. Building case studies and design projects explore a range of material and construction system types including steel, wood, masonry and reinforced concrete. Repeatable only once. Prerequisite: ARC 301.

ARC 311 Illustration and Rendering (4-0-3). Covers illustration and rendering techniques that enable students to express their ideas faster with more precise results. Covers freehand color drawing techniques using markers, color pencils and watercolors. Prerequisite/concurrent: ARC 201 or IDE 201.

ARC 316 Photography and Visual Representation (4-0-3). Introduces a broad range of photographic techniques and processes intended to facilitate the representation of architectural concepts. Explores the history, theory and practices related to various techniques. Investigates the roles of narrative and sequence in photography. Experiments with combined, montaged and repeated images. Prerequisite: ARC 201 or IDE 201 or GRD 221, or DES 160 and DES 362. Lab/Tech fee rate A applies.

ARC 331 Materials and Methods II (3-0-3). Offers an in-depth examination of the materials and processes involved in finishing a building. Uses a case study

approach to demonstrate the evolution of the building process of the major components that are built following the erection of the building's basic structure. Covers stairs, doors, windows, partitions, ceilings, floors, claddings and joints. Investigates design considerations and construction methods with hands-on experience in producing detailed drawings. Prerequisite: ARC 232.

ARC 342 Structures for Architects (3-0-3). Explores the dynamic relationship between architecture and structure, examining how structural choices can impact aspects like building facades, function and interiors. Covers fundamental structural concepts such as stability, strength, loads and stresses. Introduces the calculation of reactive forces, shear and bending. Provides insight into material structural properties. Explains the structural behavior of diverse structural systems such as trusses, arches, cables, frames and shells. Develops skills in the location and sizing of structural elements for simple trabeated structures as well as in configuring an appropriate structure to cover a long-span architectural space. Prerequisites: ARC 201 or IDE 201, and PHY 104.

ARC 354 Environmental Energies and Building Form (3-0-3). Studies the physical phenomena that make climate (rain, humidity, temperature, wind, sun, etc.) influence buildings. Covers heat transfer methods, solar radiation, vapor in air, air leakage and water condensation and wind movement. Studies indoor thermal environment and thermal comfort of building occupants. Discusses examples of how these phenomena are used in building design. Prerequisite: PHY 100 or PHY 101 or PHY 104.

ARC 366 Applied Computer-Aided Design (4-0-3). Introduces two-dimensional drafting and three-dimensional Building Information Modeling (BIM) CAD applications. Identifies components and capabilities of each application. Emphasizes the use of 2D CAD applications in the management of a drafting task to produce quality drawings. Emphasizes the use of BIM applications to assist in design decisions. Prerequisite: ARC 201 or IDE 201. Lab/Tech fee rate A applies.

ARC 382 Architectural Detailing (3-0-3). Explores the relationship between the design and production of architectural details and the conceptual underpinnings of a project. Introduces technical drawing, construction drawings and industry standards for graphic and written communication. Emphasizes the role of tectonics and material integration beyond pragmatic applications. Prerequisite: ARC 202.

ARC 397 Internship in Architecture (0-0-0). Requires a minimum of five weeks (normally 200 hours) of approved professional experience. Requires the work undertaken to be documented in a formal report submitted to the department by the beginning of the following term. Graded as Pass/Fail. Prerequisites: ARC 302 and approval of internship coordinator. Registration fee applies.

ARC 401 Architectural Design Studio V (12-0-6). Employs advanced design tools to respond to complex architectural projects in a topic or collaborative setting. Allows for disciplinary research and experimentation involving specialized techniques and in-depth investigation beyond the scope of schematic building design. Projects address the discipline of architecture at various scales, ranging from details and full-scale fabrication to urban design. Repeatable only once. Prerequisites: ARC 232 and ARC 302.

ARC 402 Architectural Design Studio VI (12-0-6). Comprises a capstone and focuses on the development of a comprehensive building design project integrating building technologies with other non-technical design issues. Addresses data collection, analysis and programming along with a detailed design development of building technology components. Repeatable only once. Prerequisite: ARC 401.

ARC 421 Architectural Theory (3-0-3). Engages the conceptual basis of the work of specific architects, historical and contemporary architectural historians and theoreticians from the 1960s to the present. Examines schools of thought in architecture with an emphasis on the understanding of both written and visual analysis of built form and design. Prerequisites: ARC 221, ARC 222, and ENG 203 or ENG 204.

ARC 424 Evolution of Cities (3-0-3). Introduces the origin, growth and development of cities throughout the history. Examines the various socioeconomic, historic, political and environmental forces that help explain city form. Explores case studies of sites from ancient times to the present with particular emphasis on cities in Islamic and Middle Eastern cultures. Prerequisite: ENG 203 or ENG 204.

ARC 433 Advanced Topics in Digital Fabrication (4-0-3). Explores advanced concepts, tools and methods used in digital fabrication practices. Investigates the relationship between technology and design through the development of advanced skills related to digital fabrication techniques in architecture. Prerequisite: ARC 202 or ARC 233 or IDE 202. Lab/Tech fee rate A applies.

ARC 437 Advanced Topics in Material Fabrication (4-0-3). Explores advanced concepts, tools and methods used in material fabrication practices. Investigates the relationship between material properties, material processes and design through hands-on fabrication exercises. Prerequisite: ARC 202 or ARC 237 or IDE 202. Lab/Tech fee rate A applies.

ARC 451 Environmental Control Systems (3-0-3). Presents the basic principles for the selection and the design of the main environmental control systems in buildings, including plumbing, heating, ventilation, air conditioning, electric, lighting, and fire suppression and protection systems. Prerequisite/concurrent: ARC 401.

ARC 463 Professional Practice (3-0-3). (Equivalent to IDE 463). Introduces the professional practice of architecture and interior design. Covers the fundamental knowledge of project management, client and consultant relationships, construction administration and the operations of a design business. Introduces the implications of time, budget and economic parameters in relation to the design process, professional ethics, social and political culture, and business management. Prerequisite: junior standing.

ARC 465 Advanced Computer-Aided Design (4-0-3). Concentrates on the specific demands on CAD systems by the architecture and building professions. Applies CAD systems to the different phases of planning: preliminary design, design, construction documents, extraction of volumetric data and transfer to spreadsheet and/or database software, rendering software, post-rendering work in pixel-editing software, technical drawing layout software, etc. Prerequisite: ARC 301 or IDE 301. Lab/Tech fee rate B applies.

ARC 474 Issues in Contemporary Urban Design (3-0-3). Examines major concepts, principles and theories of urban design. Reviews the historic development of urban design as a professional field and surveys current urban design issues, trends and practices in both the Western and non-Western/Islamic contexts. Prerequisite/concurrent: ARC 301.

ARC 497 Architectural Design Practicum (4-0-3). Focuses on the development of advanced knowledge and skills required to deliver professional architectural design services. Provides the opportunity to explore the role of project architect and liaise between the various stakeholders involved in commissioning and producing a work of architecture. Repeatable up to 6 credit hours. Prerequisite: ARC 202. Lab/Tech fee rate B applies.

ARC 498 Studio Abroad (3 to 6 credit hours). Provides studio activities conducted in regional and international sites promoting a global-oriented

approach to design. Repeatable only once. Prerequisite: studio specific.

ARC 501 Architectural Design Studio VII (12-0-6). Employs advanced design tools to respond to complex architectural projects in a topic or collaborative studio setting. Focuses on research, experimentation, and/or specialized techniques leading to solutions that address issues of program, context, building technology and/or fabrication. Addresses the discipline of architecture at various scales ranging from conceptual investigations to full-scale fabrication and urban design. Repeatable only once. Prerequisite: ARC 402.

ARC 502 Architectural Design Studio VIII (12-0-6). Continues the employment of advanced design tools to respond to complex architectural projects in a topic or collaborative studio setting. Employs research, experimentation and/or specialized techniques leading to solutions that address issues of program, context, building technology and/or fabrication. Addresses the discipline of architecture at various scales ranging from conceptual investigations to full-scale fabrication and urban design. Repeatable only once. Prerequisite: ARC 501.

ARC 561 Construction Management (3-0-3). Studies in-depth the interrelationships among the various professional disciplines in the building and construction industry as they pertain to issues of management and planning of complex construction projects. Reviews standard practices of tendering, contracting, quantity surveying, cost estimation, supervision, quality control and economy. Prerequisite: ARC 301 or IDE 301.

ARC 581 Critical Practice and Contemporary Discourse (3-0-3). Examines the role and application of research methodology and critical thinking in the work of leading practitioners and academics. Investigates a current topic in contemporary discourse with a focus on the articulate application of theory and research in architectural production. Foregrounds the history of ideas that frame and influence contemporary trends in the discipline. Focuses on applying critical thinking skills to the analysis and production of architecture as a mode of inquiry. Prerequisite/concurrent: ARC 401.

ARC 591 Directed Architectural Design Research (3-0-3). Focuses on the development of an architectural design research project under the guidance of a faculty advisor. Prerequisite: consent of the department.

ARC 592 Directed Architectural Design Studio (12-0-6). Focuses on the resolution of an independent architectural design project developed under the guidance of a faculty advisor and presented and defended in a formal public critique. May substitute for ARC 502. Repeatable only once. Prerequisite: consent of the department.

ART Art and Art History

ART 101 Survey of Art (3-0-3). Explores art from a historical perspective and in a global context, including Euro-America, Asia and the Global South, from the fourteenth to the twenty-first century. Examines changing conceptions of the artist, the work of art, and the discipline of art history, considering the roles images and objects have played over time, how they functioned in various contexts, and whose interests they served or sought to disrupt. Not open to students who have completed DES 121 or DES 122. Prerequisite/concurrent: WRI 101.

ART 111 Freehand Drawing (4-0-3). Introduces the basic drawing skills required for freehand drawing and includes freehand perspective, projection systems and design visualization. Not open to CAAD students and to students who have completed DES 111.

ART 211 Intermediate Drawing (4-0-3). Explores drawing approaches, attitudes, processes and materials as a means of personal visual exploration and expression. Focuses on current drawing practices through gallery visits, critiques and lectures on materials and methods. Prerequisites: ART 111 or DES 111, and WRI 102. Lab/Tech fee rate A applies.

ART 241 Introductory Painting (6-0-3). Introduces the fundamentals and principles of observational painting. Explores various representational strategies, methods, materials and techniques with exercises and assignments designed to develop skills needed to communicate visual information in a painterly context. Prerequisite: ART 111 or DES 111.

ART 280 Introduction to Pottery (4-0-3). Introduces traditional techniques and production processes using clay. Explores the concept and application of centering and form making using the potter's wheel with a variety of conventional hand-building methods including pinching, slabs, coils and hybrids. Emphasizes a reliance on tools in the manipulation of material. Prerequisites: DES 101 or DES 131, and sophomore standing. Lab/Tech fee rate B applies.

ART 365 Sharjah Biennial: Art and Curatorial Practice (3-0-3). Explores the history and theory of exhibitions, art fairs, curation and their design through readings and discussion. Establishes a fundamental understanding of how the city of Sharjah becomes a dynamic exhibition space and critical platform for contemporary artmaking. Examines best curation practices and exhibition of creative work. Features guest lectures and hands-on workshops with the Biennial's curators, organizers and visiting artists at the Biennial's 16 locations across the emirate of Sharjah. Prerequisite: DES 121 or DES 122.

ART 497 Arts Practicum (6-0-3). Focuses on developing and advancing knowledge and skills required to support artistic and curatorial projects. Addresses the roles at play in collaborations with artists and curators. Provides the opportunity to synthesize theory and practice in real-world projects. Repeatable up to 6 credits. Prerequisites: junior standing and permission of the instructor.

DES Design

DES 101 Design Foundations for Non-Majors (6-0-3). Introduces knowledge, skills and theories comprising design. Focuses on the learning process as a designer. Explores a variety of tools, media and design strategies through ideation, design process, design communication and presentation as an experience of generating designed artifacts. Includes workshops and demonstrations in the studio, the materials lab and the computer lab. Not open to CAAD students and to students who have completed DES 131.

DES 111 Descriptive Drawing I (6-0-3). Introduces the principles and practice of observational drawing. Explores various representational approaches. Encourages the development of skills needed to effectively communicate visual information. Explores a range of materials and tools. Restricted to CAAD students. Not open to students who have completed ART 111. Not repeatable.

DES 112 Descriptive Drawing II (6-0-3). Introduces the principles of analytical drawing. Emphasizes the development of a critical approach to representing form, space and scale using a range of techniques, tools and materials. Covers various projective and perspective systems. Restricted to CAAD students. Not repeatable.

DES 121 Introduction to Architecture, Art and Design History (3-0-3). Explores a global approach to art, architecture and design. Investigates the technological, religious and social forces that helped to reveal the universality of the human impulse to design. Examines ideas, techniques and design methods thematically within a chronological

framework covering the time span from the Stone Age to the Industrial Revolution.

DES 122 Modern Developments in Architecture, Art and Design (3-0-3). Examines ideas, techniques and design methods thematically from the Renaissance to the late 20th century and the contemporary world. Investigates the technological, religious and social forces that drive the universal human impulse to design. Explores a global view of art, architecture and design.

DES 131 Design Foundations I (6-0-3). Introduces the principles and methods of design. Examines composition and visual order. Explores graphic and material methods of representation needed to experiment with concepts of shape, form and space. Includes the development of a visual and verbal design vocabulary. Introduces craft and making skills with a variety of materials and tools. Restricted to CAAD students. Not repeatable.

DES 132 Design Foundations II (6-0-3). Introduces the principles and methods of design, with an emphasis on process and conceptual development. Explores organizational systems, space and form in the creation of two-and three-dimensional design concepts. Explores craft and making skills with a variety of materials and tools. Restricted to CAAD students. Not open to students who have completed DES 200. Not repeatable. Prerequisite: DES 131.

DES 160 Introduction to Photography (4-0-3). Provides a hands-on introduction to photographic practice. Introduces photography basics and camera control across a variety of digital photography equipment as well as digital applications. Covers photographic language and considerations through the study of examples taken from the history of photography. Not open to BSFMD and BSGRD students. Not open to students who have completed GRD 221. Lab/Tech fee rate A applies.

DES 170 Introduction to Product Design (4-0-3). Surveys the contemporary and historical developments in product design. Develops an understanding of the roles of the product designer and introduces fundamental environmental, cultural and economic issues relevant to the design of products. Introduces the scope and range of product design, including an awareness of product system service design. Explores various stages and processes of product design including design research, concept generation, scenario building, market evaluations, design development and production. Employs case studies, written and verbal presentations, and introduces basic skills through the development of small-scale exercises. Prerequisite: DES 101 or DES 131. Lab/Tech fee rate B applies.

DES 200 Communication Design (6-0-3). Introduces the materials and techniques most commonly used by designers in the field of communication and stresses the development of skills 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. Restricted to non-CAAD students. Prerequisite: DES 101 or DES 131 or MDC 101 or NGN 110 or BIS 101 or STA 201 or STA 202. Lab/Tech fee rate A applies.

DES 230 Visual Communication Design (4-0-3). Engages in visual design as it applies to effectively communicating brands and constructing narratives. Establishes fundamental understanding and skills necessary for creating visual identity. Examines best practices, such as development of brand manuals, in producing online and print collateral. Addresses typography, grid systems, information hierarchy, color and composition. Restricted to students formally admitted to the DES major. Prerequisites: DES 111, DES 112 and DES 132. Lab/Tech fee rate A applies.

DES 231 History of Design (3-0-3). Explores topics in the history of design and visual communication. Introduces recognized schools of design philosophy and/or practice. Explores the relationship between design and culture. Prerequisites/concurrent: WRI 102 and sophomore standing.

DES 232 Research Methodologies for Design (3-0-3). Introduces research processes within design practice and theory. Explores diverse research methods and strategies that inform design decisions while improving process, efficiency and time management. Addresses research demands implicit to design disciplines through readings, discussions and practical assignments. Prerequisites: DES 101 or DES 131, and ENG 203 or ENG 204.

DES 270 Design as Form (6-0-3). Develops skills in three-dimensional design and form making. Explores relationships of form, perception and visual/sensory phenomenon with specific focus on the application of design principles to the creation of small-scaled objects through methods of modeling and development. Prerequisites: DES 101 or DES 131, and sophomore standing. Lab/Tech fee rate A applies.

DES 275 Fundamentals of Design Management (3-0-3). Introduces the fundamentals of design management. Includes the implementation of design management at the corporate, process and project level in corporative, medium and small-sized enterprises. Stresses skills required in different organizations in the global economy. Prerequisite: DES 101 or DES 131.

DES 300 User-Centered Design Project (6-0-3). Engages in designing for a purpose with an emphasis on user-centered design. Introduces various stages and processes of design, including design research, problem finding, concept generation, scenario building, prototyping and design development. Introduces design of digital applications, user interface and user experience. Prerequisite: DES 230. Lab/Tech fee rate A applies.

DES 360 Critical Discourse in Design (3-0-3). Examines the relationship between design intention and interpretation. Reviews the application of graphic language in visual media. Requires research on topics related to design communication. Complements studio-based design courses by exploring design considerations and practice from a theoretical perspective. Prerequisite: DES 231.

DES 362 History of Photography: The Portrait (3-0-3). Explores the history of photography as evidenced in the development of the photographic portrait. Covers examples of early photographic practice; the commercialism of photography; and documentary, fine art and contemporary approaches to the photographic portrait genre. Prerequisite: ENG 203 or ENG 204.

DES 370 Introduction to Prototyping (6-0-3). Examines the conceptual and technical skills that represent evolutionary steps in design process and production. Covers the use of hand drawing, digital rendering and fabrication techniques to develop ideas. Addresses concept generation skills, including ideation drawing and rapid prototyping activities. Focuses on the visual and verbal communication skills necessary for the projection and promotion of ideas and products. Prerequisite: ARC 201 or DES 230 or DES 270 or IDE 201 or FMD 201 or GRD 201, or DES 101 and MCE 236L. Lab/Tech fee rate B applies.

DES 374 Package Design (4-0-3). Introduces principles of package design. Focuses on the integration and application of graphic and visual elements to three-dimensional objects through folding, creasing and simple die cutting. Examines packaging trends in the context of the needs of the region to develop economical, responsible and sustainable solutions. Covers environmental and social issues related to packaging. Prerequisite: DES 101 or DES 131. Lab/Tech fee rate A applies.

DES 397 Internship in Design Management (0-0-0). Requires a minimum of five weeks (normally 200 hours) of approved professional experience. Requires the work undertaken to be documented in a formal report submitted to the department by the beginning of the following term. Graded as Pass/Fail. Prerequisites: Junior II standing and approval of internship coordinator. Registration fee applies.

DES 462 Design Management (3-0-3). Introduces the principles and practices of the economic and commercial aspects of design practice in a global economy. Includes microeconomics theory as it applies to private enterprise: basic business economics, planning and management. Gives attention to the processes and skills required in establishing an independent design office. Prerequisite: DES 300.

DES 475 Service Design (4-0-3). Introduces the core activities of service design including the planning and organizing of people, infrastructure, communication and material components of a service in order to improve its quality and the interaction between service providers and customers. Emphasizes tools, techniques and methods of service design. Prerequisite: DES 300.

DES 480 Systems and Strategic Design Thinking (6-0-3). Engages in developing design-led strategies for social and business systems with an emphasis on stakeholders and innovation using design thinking. Addresses platforms for products and services. Involves exploring, creating and choosing among multiple options within strategic goals and constraints. Prerequisites: DES 462 and DES 475. Lab/Tech fee rate A applies.

DES 497 Design Practicum (6-0-3). Focuses on the development and advancement of knowledge and skills required to deliver professional design services. Addresses the roles that collaboration and client demands play in design practice. Provides the opportunity to synthesize theory and practice in real-world projects. Repeatable up to 6 credits. Prerequisite/concurrent: DES 300 or ARC 202 or IDE 202 or FMD 202 or GRD 202.

DES 498 Studio Abroad (3 to 6 credit hours). Provides studio activities conducted in regional and international sites promoting a global-oriented approach to design. Repeatable only once. Prerequisite: studio specific.

FLM Film

FLM 100 The Art of Film (4-0-3). Introduces the central issues of film aesthetics, including formal and stylistic elements: color, lighting, editing, sound, movement, mise-en-scene, etc. Develops analytical and interpretive skills by providing critical tools required for discussing and writing about film as well as examining relationships between a film and its technological and cultural impact on society. Subjects are treated topically rather than historically, and emphasis is placed on mastering key concepts of film grammar and art. Prerequisite/concurrent: WRI 102.

FLM 206 Cities and Cinema (4-0-3). Explores the role cities play in movies, and how images of cities and urban life are constructed in cinema. Considers the ways cities are portrayed as both real and imagined backdrops to film narratives. Studies the visual means by which movies, through lighting, photography, special effects and editing, mediate and condition our perception and understanding of the city. Considers the reasons why filmmakers choose to depict cities and the urban environment in the ways that they do. Prerequisites: WRI 102, and DES 101 or DES 121 or DES 122 or MDC 101.

FLM 210 Narrative Structure in Film (4-0-3). Introduces digital narrative storytelling, focusing on developing basic technical and conceptual skills in pre-production, production, post-production and distribution. Examines production and post-production techniques related to the specific conventions of narrative genres and the aesthetic of a frame. Projects emphasize the development of story structure and characters, screenwriting and storyboarding. Introduces technical skills required to develop and market a short film. Prerequisites: FLM 100, and ENG 203 or ENG 204. Lab/Tech fee rate A applies.

FLM 310 Film Production (4-0-3). Introduces advanced ideas and practices in narrative filmmaking required for conceptual development, production, post-production and distribution of short films. Explores significant historical references that provide a critical understanding of film genres. Provides students with skills required to create sophisticated, compelling, professional-quality short narrative or immersive films. Prerequisite: FLM 210 or FMD 201 or MDC 277. Lab/Tech fee rate B applies.

FLM 332 Experimental Film and Video (4-0-3). Examines basic to intermediate concepts as they relate to the aesthetics of short non-narrative format. All three stages of production are represented through a series of practical projects that enable students to investigate the relationship between image and sound as they relate to overall aesthetic value. Different approaches are examined through screening of case studies focusing on style conventions. Prerequisite: DES 230 or FLM 210 or MDC 101 or FMD 201 or GRD 201. Lab/Tech fee rate A applies.

FLM 360 Screenwriting (3-0-3). Focuses on the craft of writing for film and television. Covers research methods, interviewing techniques, subject treatment, dialogue writing and the development of basic script formats. Explores the process of transforming story ideas into film or television scripts. Prerequisites: FLM 100, and ENG 203 or ENG 204.

FLM 410 Advanced Film Production (4-0-3). Introduces complex production techniques within three stages of the filmmaking process. Exposes students to film practice through pre-production planning, budgeting, scheduling, directing actors and leading a production team. Provides students with the advanced filmmaking skills and knowledge necessary to confidently take on leadership roles in film production as a director, editor, producer or cinematographer. Prerequisite: FLM 310 or FLM 332. Lab/Tech fee rate A applies.

FMD Film and New Media Design

FMD 201 Film and New Media Design Studio I (6-0-3). Introduces fundamental skills in the creation of digital sound and image content. Explores the interrelationship of image, text and sound through formal investigations and basic narrative sequencing. Restricted to students formally admitted to the FMD major. Repeatable only once. Prerequisites: DES 111, DES 112, DES 121 or DES 122, DES 132, MTH XXX and WRI 101. Lab/Tech fee rate A applies.

FMD 202 Film and New Media Design Studio II (6-0-3). Introduces the principles of interaction design by analyzing and creating objects, interfaces and patterns. Emphasizes the creation of functional prototypes using industry standard practices. Repeatable only once. Prerequisite: FMD 201. Lab/Tech fee rate A applies.

FMD 221 Motion Graphics and Video (4-0-3). Introduces compositing strategies using video, sound and image content. Provides historical overview and conceptual context through case studies and screenings of significant work. Prerequisite: FMD 201. Lab/Tech fee rate A applies.

FMD 301 Film and New Media Design Studio III (6-0-3). Explores sequential narrative design in linear and interactive media. Emphasizes analysis and deconstruction of significant narrative structures in relationship to form, content

and meaning. Repeatable only once. Prerequisite: FMD 202.

FMD 302 Film and New Media Design Studio IV (6-0-3). Examines user experience design through the integration of research, prototyping, content creation and media delivery. Emphasizes the development and presentation of functioning prototypes. Repeatable only once. Prerequisite: FMD 301.

FMD 304 Media Systems and Publishing (4-0-3). Explores various methods of distribution through current and future platforms and provides comprehensive understanding of media as a system. Examines the relationship between commerce, design and communication. Prerequisite: FMD 301. Lab/Tech fee rate A applies.

FMD 311 Animation (4-0-3). Introduces the principles of animation through exploration of traditional animation techniques, concepts and storyboarding. Emphasizes the production of images in motion and expression utilizing traditional or digitally aided processes. Prerequisite: ARC 201 or DES 230 or IDE 201 or FMD 201 or GRD 201 or MDC 200. Lab/Tech fee rate A applies.

FMD 331 3D Animation (4-0-3). Addresses strategies and production pipeline in 3D modeling and animation: non-linear animation strategies, texture mapping, dynamics, lighting and rendering for contemporary professional output. Prerequisite: FMD 201 or FMD 311. Lab/Tech fee rate A applies.

FMD 360 Film and New Media Design History and Theory (3-0-3). Examines the origins and history of film and new media and its technologies. Surveys critical media culture readings from both the theoretical field of media studies and the creative works of artists, designers, filmmakers and writers. Prerequisite: DES 231.

FMD 397 Internship in Film and New Media Design (0-0-0). Requires a minimum of five weeks (normally 200 hours) of approved professional experience. Requires the work undertaken to be documented in a formal report submitted to the department by the beginning of the following term. Graded as Pass/Fail. Prerequisites: FMD 302 and approval of internship coordinator. Registration fee applies.

FMD 404 Film and New Media Design Studio V (6-0-3). Focuses on the development of advanced discipline-specific film and new media design projects through the use of time base and interactive media. Provides insight into real-world challenges while emphasizing conceptualization, ideation, creative problem solving, critical thinking, communication and presentation skills. Explores local, regional or global themes through individual and industry-collaborative projects. Repeatable only once. Prerequisite: FMD 302. Lab/Tech fee rate A applies.

FMD 406 Film and New Media Design Studio VI (12-0-6). Focuses on the development of a compressive film and new media design project. Addresses the role of research, analyses and synthesis in professional design practice. Covers aspects of planning, management and production. Requires and approved student-initiated or faculty-directed capstone/topical project. Repeatable only once. Prerequisites: FMD 404 and FMD 450.

FMD 450 Advanced Techniques in Film and Media Design (6-0-3). Introduces strategies and techniques for developing and executing technically advanced work in a digital media environment. Focuses on creating conceptually advanced, technically perfected projects that supplement students' portfolios. Requires students to pitch, present and critically evaluate their work within the context of industry standards and professional practice. Prerequisite: FMD 302.

FMD 498 Studio Abroad (3 to 6 credit hours). Provides studio activities conducted in regional and international sites promoting a global-oriented approach to design. Repeatable only once. Prerequisite: studio specific.

GRD Graphic Design

GRD 201 Graphic Design Studio I (6-0-3). Introduces principles of graphic composition and organization through systems-based approaches to design. Explores formal relationships of varying complexity, from simple abstractions to the articulation of multiple categories of text and image-based information. Presents strategies to manage content. Examines denotation and connotation in graphic design. Addresses the integration of digital media within design projects. Restricted to students formally admitted to the GRD major. Repeatable only once. Prerequisites: DES 111, DES 112, DES 121 or DES 122, DES 132, MTH XXX and WRI 101. Lab/Tech fee rate A applies.

GRD 202 Graphic Design Studio II (6-0-3). Covers essential typographic, compositional and imaging techniques. Examines strategies of creating, manipulating and combining text and images to facilitate communication. Explores varied means of visualization for print-or time-based media. Introduces the role of sequencing and transformation in communicating visual and textual information. Repeatable only once. Prerequisite: GRD 201. Lab/Tech fee rate A applies.

GRD 213 Illustration Drawing (4-0-3). Builds on skills introduced in foundation drawing and encourages students to utilize a variety of illustration media and techniques. Class projects focus on photo reference gathering techniques, visualizing concepts and ideas, graphic reductions and other areas of commercial illustration. Prerequisite/concurrent: ART 111 or DES 111. Lab/Tech fee rate A applies.

GRD 221 Photography Basics (4-0-3). Introduces basic photographic skills of camera control and photographic practice through the use of digital technology. Introduces and explores topics relating to the history and theory of photographic practice. Not open to students who have completed DES 160. Prerequisite: DES 101 or DES 131. Lab/Tech fee rate A applies.

GRD 231 Typography I: Normative Typographic Principles (4-0-3). Introduces the fundamental conventions and vocabulary associated with typography. Addresses information hierarchy through the study of visual form and structure. Explores the editorial and expressive potentials of typography. Engages traditional and digital technologies within coursework. Prerequisite/concurrent: ARC 201 or DES 230 or IDE 201 or FMD 201 or GRD 201. Lab/Tech fee rate A applies.

GRD 301 Graphic Design Studio III (6-0-3). Examines the relationship between graphic form and content. Addresses the role of semiotics in graphical communication. Emphasizes the application of methods and strategies used in the design of print-based publications for general and/or specific audiences. Repeatable only once. Prerequisites: GRD 202 and GRD 331.

GRD 302 Graphic Design Studio IV (6-0-3). Explores representations of abstract ideas in the form of symbols and logotypes. Covers research methods and design strategies associated with the development of graphic identity systems. Addresses the role of branding, the development of project briefs, logo design, and the development and application of graphical identity standards. Repeatable only once. Prerequisite: GRD 301.

GRD 312 Illustration Genres (4-0-3). Explores the potential of 19th and 20th century illustration genres as a means of visual communication. Investigates use of historical illustration styles in a contemporary context. Prerequisite: GRD 213 or ART 211.

GRD 313 Visual Narrative (4-0-3). Explores narrative and storytelling structures in design including storyboarding and sequential drawing. Examines history and current practice in sequential visual arts. Emphasizes

research, drawing and rendering skills needed to develop characters in sequential formats such as animation, film, illustration, children's and juvenile books, and graphic novels. Prerequisites: GRD 213 or ART 211, and ENG 203 or ENG 204. Lab/Tech fee rate A applies.

GRD 320 Printmaking: Lithography and Screen Printing Methods (4-0-3). Introduces basic concepts and skills in traditional and contemporary lithography, screen printing and alternative printmaking methods while developing a firm skills base. Investigates traditional mechanical and digital experimental reproductive processes across a range of disciplines. Prerequisite: GRD 201 or ARC 201 or ART 211 or DES 230 or IDE 201 or FMD 201. Lab/Tech fee rate B applies.

GRD 326 Screen Printing: Methods and Techniques (4-0-3). Develops skills in screen printing and its potential applications for both paper and alternate surfaces. Explores the different techniques for developing screen print initially using paper and hand-painted stencils and then moving onto photographic stencils and combinations of the two. Prerequisite: GRD 202 or ARC 202 or DES 300 or IDE 202 or FMD 202. Lab/Tech fee rate B applies.

GRD 327 Analog Photography Processes (4-0-3). Covers the practice of 35mm analog photography. Explores darkroom printing techniques and processes central to effective visual communication. Focuses on theme work and the development of a portfolio. Prerequisite: GRD 221 or ARC 316, or DES 160 and DES 362. Lab/Tech fee rate A applies.

GRD 328 Arabic Type Design (4-0-3). Introduces relevant theories and histories of Arabic type design from calligraphy to more contemporary typographic practices. Presents vocabulary and tools related to Arabic typography/type design. Explores print based media in the creation of typographic compositions. Prerequisite: GRD 202 or ARC 202 or DES 202 or DES 230 or FMD 202. Lab/Tech fee rate A applies.

GRD 331 Typography II: Complex Typographic Systems (4-0-3). Explores the relationship between content and form in typographic design. Examines the normative and expressive aspects of typography and how they function in micro publications, complex multi-page and or multilingual publications, wayfinding and information systems, and text for exhibitions supported by reference and analysis of contemporary case studies. Focuses on analyzing content, its meaning, and the intended goals and needs of both the information provider and the information user. Prerequisites: GRD 201 and GRD 213. Lab/Tech fee rate B applies.

GRD 342 Environment, Experience and Interaction Design (4-0-3). Explores the intersection of visual communication and the built environment through lectures, case-study analysis and studio projects. Covers wayfinding systems, architectural graphics, signage, dynamic environments and mapping. Prerequisite: GRD 301. Lab/Tech fee rate B applies.

GRD 361 The Design Profession (3-0-3). Deals with issues of working in design-related fields, including professional practice, intellectual property, employability, freelancing and working within a cultural context. Imparts knowledge of the region's design industry, through research and field trip documentation. Prepares students for their summer internships. Open to Department of Art and Design students only. Prerequisite/concurrent: DES 360 or FMD 360.

GRD 397 Internship in Graphic Design (0-0-0). Requires a minimum of five weeks (normally 200 hours) of approved professional experience. Requires the work undertaken to be documented in a formal report submitted to the department by the beginning of the following term. Graded as Pass/Fail. Prerequisites: GRD 302 and approval of internship coordinator. Registration fee applies.

GRD 401 Graphic Design Studio V (6-0-3). Focuses on the development of topical discipline-specific or inter-/transdisciplinary design projects. Explores local, regional and/or global themes through individual and/or collaborative projects. Prerequisite: GRD 302. Lab/Tech fee rate A applies.

GRD 406 Graphic Design Studio VI (12-0-6). Focuses on the development of a comprehensive communication design project. Addresses the role of research, analysis and synthesis in professional design practice. Covers aspects of planning, management and production. Requires an approved student-initiated or faculty-directed capstone/topical project. Repeatable only once. Prerequisite: GRD 401.

GRD 498 Studio Abroad (1 to 6 credit hours). Provides studio activities conducted in regional and international sites promoting a global-oriented approach to design. Repeatable only once. Prerequisites: GRD 202 and consent of the department.

IDE Interior Design

IDE 201 Interior Design Studio I (12-0-6). Investigates the fundamentals of interior space with a focus on design inquiry, process and representation. Introduces components that shape interior space and analyzes their relationships with a given context. Develops the basic skills of spatial organization by addressing issues of size, scale, hierarchy, distribution and circulation. Introduces software applications and graphic techniques integral to the development and presentation of studio projects. Restricted to students formally admitted to the ID major. Repeatable only once. Prerequisites: DES 112, DES 121, DES 122, DES 132, and MTH 001 or MTH 003 or MTH 103 or MTH 111, and WRI 101. Lab/Tech fee rate B applies.

IDE 202 Interior Design Studio II (12-0-6). Continues the investigation of the IDE 201 studio content with additional emphasis on the application of natural and artificial light, colors and materials. Technical resolutions and anthropometric requirements in the context of space making are broadly investigated. Further develops the use of software applications and graphic techniques integral to the development and presentation of studio projects. Repeatable only once. Prerequisite: IDE 201. Lab/Tech fee rate B applies.

IDE 225 History and Theory of Interior Design: Global and Regional Issues (3-0-3). Examines the historical and social movements that established the foundation for the contemporary practice of interior design. Reviews historical origins of design in the Middle East and its influence in Eastern civilization from the 18th century onwards. Emphasizes design history from the industrial revolution to the present, with an in-depth revision from the avant-garde artistic and aesthetic streams of the 20th century to the most important contemporary designs. Prerequisites: DES 101 or DES 131, and WRI 101.

IDE 239 Interior Materials and Methods (3-0-3). Introduces interior architectural finish and construction materials, available products, performance characteristics, technical attributes and considerations, and methods of application. Explores basic structural systems, interior finish materials and applications, technical evaluation methods, detail documentation and specification requirements using standard construction methodology. Restricted to students formally admitted to the ID major.

IDE 251 Color and Light (4-0-3). Introduces the fundamentals, principles and art of lighting and color, and their visual and physical effects in interior design. 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, including illumination levels, color temperatures, light sources and light

fixtures. Prerequisites: DES 101 or DES 131, and WRI 101.

IDE 301 Interior Design Studio III (12-0-6). Focuses on advanced spatial concepts relevant to contemporary practices in the field. Investigates the role of precedents and analogue spaces in generating conceptual ideas. Examines the expressive potential of interior elements (floor, wall, stairs, openings, etc.) and materials. Develops an understanding of the relationship between interior elements, materials and the architectural shell. Explores various design scales with a specific focus on how resolved technical details can express formal ideas. Repeatable only once. Prerequisites: IDE 202 or ARC 202, and PHY 104.

IDE 302 Interior Design Studio IV (12-0-6). Continues the intent and purpose of IDE 301. Emphasizes the development of programming strategies within a defined cultural context. Concentrates on the phenomenological aspects of interior environments and explores the spatial and perceptual implications of artificial lighting and materials. Explores the conceptual and spatial implications of furniture layout, selection and design. Repeatable only once. Prerequisite: IDE 301.

IDE 334 Furniture and Furnishings (4-0-3). Addresses furniture designers, typologies, principles of anthropometrics and ergonomics related to work processes/seating and the human body, materiality, construction and fabrication/production technologies. Explores the form, function, aesthetics and cultural influences through lectures, class discussions, case studies and various media. Culminates in assignments, presentations, and research, and the development of scale models of furniture design projects. Prerequisites: DES 132, and ENG 203 or ENG 204.

IDE 335 Furniture Design Basics (4-0-3). Explores the basic function and design of furniture as it relates to human factors, such as anthropometrics and ergonomics. Provides a link between historical, theoretical and practical experience. Defines the elements of form, function and aesthetic by exploring experimental concepts and adopting alternative ways of thinking about the objects that surround us. Applies furniture models built to scale, or other presentation techniques, to effectively support the evolution of new concepts. Prerequisite/concurrent: IDE 201 or ARC 201.

IDE 352 Environmental Control Systems in Interior Design (2-3-3). Provides an integrated presentation of environmental control systems (lighting, heating, ventilating, air conditioning, sanitary and acoustics) with special attention to the needs of interior designers. Presents systems as they influence one another and as they constrain interior space planning and design. Prerequisite: PHY 104; prerequisite/concurrent: IDE 201 or ARC 201.

IDE 397 Internship in Interior Design (0-0-0). Requires a minimum of five weeks (normally 200 hours) of approved professional experience. Requires the work undertaken to be documented in a formal report submitted to the department by the beginning of the following term. Graded as Pass/Fail. Prerequisites: Junior II standing and approval of internship coordinator. Registration fee applies.

IDE 401 Interior Design Studio V (12-0-6). Addresses a large-scale interior design project within a specific cultural context. Integrates advanced topics with conventional design development strategies. Addresses issues of sustainability, life safety, accessibility, human behavior and spatial experience. Repeatable only once. Prerequisite: IDE 302.

IDE 402 Interior Design Studio VI (12-0-6). Explores a comprehensive large-scale interior design project with an emphasis on the production of a full set of construction drawings and specifications, including an understanding of building systems, code compliance, sustainability and health, safety and welfare (HSW). Repeatable only once. Prerequisite: IDE 302.

IDE 434 Construction, Detailing and Structures (4-0-3). Builds upon IDE 239 Materials and Methods, examining interior structures and construction. Addresses the content, vocabulary and process involved in design, detailing and fabrication of interior spaces. Emphasizes the development of technical drawings and language to effectively communicate with allied design practitioners. Prerequisite: IDE 239 or ARC 232.

IDE 463 Professional Practice (3-0-3). (Equivalent to ARC 463). Introduces the professional practice of architecture and interior design. Covers the fundamental knowledge of project management, client and consultant relationships, construction administration and the operations of a design business. Introduces the implications of time, budget and economic parameters in relation to the design process, professional ethics, social and political culture, and business management. Prerequisite: junior standing.

IDE 498 Studio Abroad (3 to 6 credit hours). Provides studio activities conducted in regional and international sites promoting a global-oriented approach to design. Repeatable only once. Prerequisites: IDE 302 or ARC 302, and consent of department.

UPL Urban Planning

UPL 302 Analysis of Spatial Phenomena (3-0-3). Addresses key concepts and technical skills involved in analyzing spatial phenomena. Covers topics such as spatial inferences, cartographic quality, geospatial data, exploratory spatial data analysis, and analytical concepts and methods. Emphasizes a working knowledge of geographic information systems and related software applications. Prerequisites: junior standing, any 100-level MTH course, and WRI 101. Lab/Tech fee rate A applies.

AUS Courses Offered Abroad

AUS courses offered abroad provide degree-seeking students with the opportunity to complete and earn credit hours for AUS courses or AUS studios that are conducted in a regional or an international site.

Course Abroad (1 to 3 credit hours). Features on-site visits offering the opportunity to experience first-hand regional and international design practices or to engage in site-specific design projects, highlighting particular themes relevant to the specific location. Department permission is required for enrollment and credit. Can be repeated for credit. Prerequisites: topic specific. Lab/Tech fee may apply.

Studio Abroad (3 to 6 credit hours). Provides studio activities conducted in regional and international sites promoting a global-oriented approach to design. Repeatable only once. Prerequisite: studio specific (see specific entries earlier in this section).

Courses abroad are numbered as 193, 293, 393 or 493 courses. Studios abroad are numbered as 498. The three-letter course prefix reflects the field of study of the course.

An existing course/studio offered abroad is coded using the course number in the catalog.

Descriptions of AUS courses offered abroad are made available in the college during registration.

Independent Study

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

Students are allowed to take one independent study. A second independent study could be approved by the student's associate dean for graduation purposes only.

Independent Course (1 to 4 credit hours). An existing course offered in an independent study format. The course is coded using the course number in the catalog. Approved special topic courses can be offered in an independent course format.

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

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

Directed Study (1 to 4 credit hours). An investigation under faculty supervision beyond the scope of existing courses. Prerequisites: minimum CGPA of 3.00, Junior II standing and consent of the instructor.

Directed study courses are numbered as 396 or 496 courses. The three-letter course prefix reflects the field of study of the course (e.g., directed study courses in architecture are coded as ARC 396 or ARC 496).

For more details on independent study, please refer to Registration in Independent Study Courses in the Academic Policies and Regulations section of this catalog.

Special Topic Courses

Special Topic (1 to 4 credit hours). Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: topic specific. Lab/Tech fee may apply.

Special topic courses are numbered as 194, 294, 394 or 494 courses. The three-letter course prefix reflects the field of study of the course.

Special topic courses at the 300 level require sophomore standing or above; 400-level special topic courses are restricted to junior standing and above.

Descriptions of particular special topic courses are made available in the college during registration.

College of Arts and Sciences

ANT Anthropology

ANT 205 World Cultures (3-0-3). Explores the varied cultures of the world. Addresses the critical importance of societal culture as a tool of human survival. Uses anthropological methods to give an appreciation of cultural differences and similarities and thereby increases understanding of the complex world with which we must cope.
Prerequisite/concurrent: WRI 102.

ANT 206 Introduction to Anthropological Archaeology (3-0-3). Examines selected historic and prehistoric cultures and societies through the lens of anthropological archaeology. Introduces the data, methods, goals and theoretical concepts archaeologists use to interpret both material culture and the historical record in order to build knowledge of the past. Prerequisite: WRI 102.

ANT 308 The Non-Human Environment (3-0-3). Analyzes how a variety of cultures around the world interact with the non-human environment. Introduces students to theories and methods of inquiry into human and non-human interactions. Explores both the material and symbolic role of non-humans. Considers the impact of climate change and environmental destruction on human and non-human interactions. Prerequisite: ANT 205 or GEO 201 or SOC 201.

ARA Arabic

Arabic Language

ARA 105 Elementary Arabic I (3-0-3). Introduces the Arabic script and its phonology and basic vocabulary and grammar. Builds the foundations of the four language skills (listening, speaking, reading and writing). Forms the first part of a two-semester sequence in elementary Arabic. Limited to non-native speakers of Arabic. Prerequisite: placement test.

ARA 106 Elementary Arabic II (3-0-3). Focuses on further developing the four language skills introduced in Elementary Arabic I. Expands knowledge of Arabic grammar and vocabulary. Fosters cultural awareness of the Arab world through the use of short texts and situational dialogues. Forms the second part of a two-semester sequence in elementary Arabic. Limited to non-native speakers of Arabic. Prerequisite: placement test.

ARA 203 Intermediate Arabic I (3-0-3). Develops the four basic language skills (listening, speaking, reading and writing) with emphasis on the oral and written skills, as part of a two-term sequence in intermediate Arabic. Introduces Arab culture through the use of authentic reading materials drawn from different genres, such as literature, history, politics and science. Limited to non-native speakers of Arabic. Prerequisite: placement test.

ARA 205 The Language of the Qur'an (3-0-3). (In Arabic). Introduces the language of the Qur'an from a linguistic perspective. Examines the semantic, syntactic and rhetorical elements that substantially affect comprehension of the Qur'anic text. Prerequisite: permission of the instructor.

ARA 308 Arabic Grammar in Use (3-0-3). (In Arabic). Provides an overview of the historical background of Arabic grammar, its origin, schools, and place within and impact upon the Arabic language, history and culture. Covers the syntactic and morphological structures of Arabic that contribute to coherence and semantics and applies them practically to sociolinguistic contexts. Addresses traditional and modern approaches to Arabic grammar in use. Prerequisite: permission of instructor.

ARA 340 The Social Context of Arabic (3-0-3). (In English). Examines the language situation in the Arab world including matters such as Arabic diglossia, code switching, language attitudes, language planning and policy, language variation, language and education, gender and language, minority languages, multilingualism, and social and national identity and language use. Prerequisite: ENG 203 or ENG 204.

Arabic Literature

ARA 101 Introduction to Arabic Heritage I (3-0-3). (In both Arabic and English). Introduces the intellectual, literary, artistic and cultural contributions of the Arabs to world civilization from pre-Islamic times to the fall of Baghdad in 1258 CE. Sections taught in Arabic are available to English Bridge Program students approved by the English Bridge Program coordinator.

ARA 102 Introduction to Arabic Heritage II (3-0-3). (In both Arabic and English). Introduces the intellectual, literary, artistic and cultural contributions of the Arabs to world civilization from the fall of Baghdad in 1258 CE to the end of the 19th century. Sections taught in Arabic are available to English Bridge Program students approved by the English Bridge Program coordinator.

ARA 104 Introduction to Arabic Poetry (3-0-3). (In Arabic). Introduces the formal conventions of Arabic poetry as well as the basic elements that work to create a poem. Studies poetic devices and techniques used to convey meaning. Examines Arabic poems and major poetic schools and movements. Explores the evolution of Arabic poetic forms and the wide range of genres addressed through poetry.

ARA 201 Arabic Literature in Translation (3-0-3). (In English). Provides a detailed study of genre and theme in Arabic literature with special emphasis on the modern period. Prerequisite: WRI 102.

ARA 206 Modern Arabic Prose (3-0-3). (In both Arabic and English). Surveys the renaissance of Arabic prose from the 19th century to the present. Examines the modern Arabic novel, short story, play and autobiography. Studies the rise of these fundamentally Western literary forms in the Arab world as a result of the Arab "Awakening" (*al-Nahda*). Prerequisite: ARA 101 or ARA 102.

ARA 207 Arabic Drama (3-0-3). (In both Arabic and English). Looks at the emergence of Arabic drama in the 19th century until the present day and assesses prototype drama forms of the medieval period. Provides, through a study of selected plays by prominent authors, a picture of the influence of Arabic drama on Arabic literature. Prerequisite: ARA 101 or ARA 102.

ARA 250 Introduction to Arabic Digital Humanities (3-0-3). (In English). Provides an introduction to, and critical engagement with, the interdisciplinary field of digital humanities. Examines the historical development of digital humanities from its beginnings to the present day. Covers a variety of digital tools and approaches to organize, explore, understand and visualize data. Discusses the challenges of digitizing Arabic, and applies digital methodologies to texts in or related to Arabic language and culture of various types. Prerequisite: WRI 101.

ARA 301 Arabic Prose to the end of the Abbasid Era. (3-0-3). (In Arabic). Explores the development of classical Arabic prose and its various genres in the Arabic literary tradition until the end of the Abbasid period. Examines major themes, techniques and authors through the study of selected primary texts. Contextualizes Arabic literary culture in its social,

intellectual and political milieus. Engages with the complex relationships between literary prose and the diverse forms of knowledge production that existed in this period.

ARA 304 Modern Arabic Poetry (3-0-3). (In both Arabic and English). Surveys the renaissance of Arabic poetry from the 19th century to the present. Prerequisite: ARA 101 or ARA 102 or ARA 104.

ARA 306 Arabic Travel Writings (3-0-3). (In both Arabic and English). Explains different themes in the genre of Arabic travel writing. Examines the journey as a metaphor, a venue for self-expression, a quest for identity and a site for cultural encounter. Critiques Arabic travel writing texts as part of Arabic heritage within their social and cultural contexts. Analyzes the style, language and narrative devices applied in this type of writing. Prerequisites: ARA 101 or ARA 102, and ENG 203 or ENG 204.

Arab/Islamic Culture and Civilization

ARA 103 Arabic Music in a Historical Context (3-0-3). (In English). Studies the historical development of Arabic Classical and folk musical genres from the pre-Islamic to modern times. Examines music in its dialectical relationship with political and social climates of Arab culture.

ARA 181 The Life of Muhammad (Seerah) (3-0-3). (In both Arabic and English). Provides a historical account of the life of the Prophet Muhammad as established in the Seerah, with a focus on the social, economic and religious conditions among the inhabitants of the Arabian Peninsula before and after the advent of Islam. Examines the impact and legacy of the Prophet on the various aspects of life and the building of the Muslim community.

ARA 240 Arab-Islamic Culture and Civilization (3-0-3). (In English). Examines the rise of Islam as a major world civilization. Provides an overview of the manifestation of Islamic culture in Arab history through the study of the basic Islamic texts and the contributions of Muslim intellectuals. Prerequisite: ARA 101 or ARA 102.

ARA 280 Introduction to Hadith (3-0-3). (In English). Covers the role and application of Hadith in Islam. Considers Hadith as a genre of Arabic literature. Discusses the development, preservation, and codification of Hadith in the classical period and its uses in the classical and modern periods. Prerequisite/concurrent: WRI 101.

ARA 281 The Art of Qur'anic Recitation (Tajweed) (3-0-3). (In Arabic). Provides an overview of the history and schools of Tajweed. Addresses the rules governing the correct oral rendering of the Hafs mode of reciting the Qur'an and their practical application, namely, those related to the nūn sākinah and nunnation (dissimilation/vocalization, assimilation with and without nasalization, incomplete assimilation, sound replacement), mīm sākinah, types of vowel prolongation, qalqalah and pause positions. Prerequisite: oral placement test.

ARA 282 Reason and Revelation in Arab-Islamic Thought (3-0-3). (In English). Explores the interplay between reason and revelation in classical Arab-Islamic thought. Examines how Muslim scholars from different Islamic disciplines, including speculative theology, jurisprudence and intellectual inquiry, approach the concept of reason and revelation as sources for moral knowledge. Examines concepts and doctrines of contemporary significance, such as the problem of evil, free will and predestination and the nature and foundations of moral values. Prerequisite: WRI 102.

ARA 285 Introduction to Islamic Law (3-0-3). (In English). Introduces the definitions and principles of Islamic law (*Shari'ah*) and Islamic jurisprudence (*fiqh*). Covers the historical development of Islamic legal schools and their main figures. Explores the primary and secondary sources of Islamic law. Discusses the processes by which legal verdicts are developed in the Islamic legal tradition. Provides examples of legal cases, both classical and modern, to illustrate their relevance to community religious life. Prerequisite: ARA 101 or ARA 102.

ARA 303 Classical Arab/Islamic Culture (3-0-3). (In English). Explores the ways in which Islam has shaped the history and culture of the Arabs and discusses some of the significant features of Arab/Islamic culture and the several contributions this culture has made. Prerequisite: WRI 102.

ARA 307 Arabs and the "Other" (3-0-3). (In both Arabic and English). Examines the Arab's perception of the "Other" as deployed and surveyed in Arabic literary, geographical and historical primary texts as part of Arabic heritage. Analyzes the perspectives and narrative techniques of Arab writers expressed in these texts. Considers the significance of cultural encounters for the growth of national, regional and global exchange. Prerequisite: ARA 101 or ARA 102.

ARA 320 The Andalusian Symbiosis (3-0-3). (In English). Introduces the cultural symbiosis between Muslims and Europeans during the eight centuries of Muslim rule in the Iberian Peninsula. Examines and reevaluates the literary and cultural developments of that time. Discusses the historical, literary, linguistic and artistic products of Al Andalus. Prerequisite: ARA 101 or ARA 102.

ARA 380 Sufism: Readings in Islamic Mysticism (3-0-3). (In English). Discusses the salient features of the mystical dimension within Islam. Covers the historical background of the tradition and the foremost personalities who played a major role in its development. Examines the primary concepts promoted in Sufism and their manifestation, in both a religious and social context, through the classical works that present both Sufi theory and practice. Prerequisite: ARA 101 or ARA 102 or ARA 181 or ARA 205 or ARA 281.

ARA 385 Islamic Texts in Translation (3-0-3). (In English). Explores the development of the Arab-Islamic intellectual tradition and traces the genesis of religious learning by examining the influence of the Islam's primary sacred texts and how they shaped the religion's intellectual history. Discusses the literary production of this evolution by selectively examining a range of Islamic texts from a number of disciplines such as Islamic jurisprudence (*fiqh*), scholastic theology (*kalam*), Arab philosophy (*falsafa*) and Islamic spirituality and mysticism (*tazkiyat al-nafs*). Prerequisite: ARA 101 or ARA 102 or ARA 103 or ARA 282.

ARA 402 Qur'anic Studies (3-0-3). (In English). Aims to develop the understanding of major topics in Qur'anic studies such as the revelation of the Qur'an, the characteristic features of Meccan and Medinan revelations, the notion of abrogation in the Qur'an, circumstances of revelation and parables in the Qur'an and their moral lessons. Provides the opportunity to study Qur'anic exegesis and to explore the Qur'an's various themes and theological, spiritual and legal concepts. Requires a basic understanding of Qur'anic script. Prerequisite: ARA 101 or ARA 102 or ARA 181 or ARA 205 or ARA 281.

BIO Biology

BIO 101 General Biology I (3-0-3). Covers the molecular basis of life, atoms, small molecules, macromolecules, enzymes, cells, organelles, energy and metabolism, genes and heredity. Topics range from the origins of life to cell and molecular biology and fundamentals of biochemistry. Provides a good background in biology in preparation for a profession in biology. Prerequisite/concurrent: BIO 101L.

BIO 101L General Biology Laboratory I (0-3-1). Focuses on experiments/ practices that illustrate basic knowledge, principles and concepts of biology discussed in BIO 101. Covers experiments based on scientific investigation, diffusion and osmosis, enzyme action, cell division,

cell respiration, genetics, DNA extraction and electrophoresis techniques. Prerequisite/concurrent: BIO 101. Lab/Tech fee rate A applies.

BIO 102 General Biology II (3-0-3). Covers the evolution and diversity of life including bacteria, fungi, plants, animals and other eukaryotes. Includes different organizational levels from cells to systems, plant and animal form and function, animal behavior, and human organ systems anatomy and physiology. Provides a good background in organismal biology in preparation for a profession in biology. Prerequisites: BIO 101 and BIO 101L; Prerequisite/concurrent: BIO 102L.

BIO 102L General Biology Laboratory II (0-3-1). Focuses on experiments and practices that illustrate basic knowledge, principles, and concepts of biology discussed in BIO 102. Covers experiments based on vertebrate anatomy, bacteriology, protista and fungi, bryophytes and ferns, seed plants, animal diversity and animal development. Prerequisite/concurrent: BIO 102. Lab/Tech fee rate A applies.

BIO 103 Introduction to Human Biology (3-0-3). Surveys biological concepts with a strong emphasis on human biology. Includes the following topics: the scientific method, biochemistry, cell biology, functions and dysfunctions of the human organ systems and a strong emphasis on maintaining a healthy lifestyle. Not open to science or engineering students.

BIO 210 Introduction to Human Anatomy and Physiology (3-0-3). Provides a basic foundation in human anatomy and physiology with an emphasis on the normal functions of the major human organ systems. Discusses current literature on some human diseases resulting from dysfunction. Prerequisites: BIO 101 and BIO 101L.

BIO 251 Ecology (2-3-3). Covers the general principles of ecology with an emphasis on desert ecology and conservation. Includes case studies that illustrate important ecological principles. Includes laboratory exercises that emphasize basic field ecology techniques, experimental design, data collection, modeling and analysis. Requires the completion of two professional-quality written reports. Prerequisites: BIO 102 and BIO 102L. Lab/Tech fee rate A applies.

BIO 260 Genetics and Molecular Biology (3-3-4). Introduces the general principles of genetics from Mendelian to modern molecular genetics. Covers DNA replication, transcription, translation, mutations, gene regulation, quantitative genetics, genetic engineering and genomics. Includes genetic applications in medicine, agriculture and law enforcement. Illustrates general principles discussed in class with laboratory experiments using modern equipment. Prerequisites: BIO 101 and BIO 101L. Lab/Tech fee rate B applies.

BIO 310 General Physiology (3-3-4). Explores the general physiology of multicellular organisms and emphasizes the mechanisms that coordinate activities of cells and tissues within these multicellular organisms. Assists in developing an understanding of cellular and biochemical processes fundamental to the survival of living organisms. Relates cellular processes to the organismal level and contrasts the differences in these processes as they occur in different organisms. Introduces examples of different organisms to illustrate various physiological principles. Prerequisite: BIO 210. Lab/Tech fee rate A applies.

BIO 330 Ecosystems Management (3-0-3). Focuses on the policies of ecosystems management from a scientific and natural approach. Gives special attention to current research and case studies of organism adaptations and roles in specific habitats and adverse environments, and to formulate approaches and policies most suitable for the management of natural, restored and artificial ecosystems. Reviews management practices in light of current scientific and sociobiological understanding of biodiversity, conservation and sustainability. Prerequisite: BIO 251.

BIO 332 Cell Biology (3-0-3). Includes all of the concepts related to the cell, the "unit of life." Focuses on the metabolic pathways of the cell as they relate to the structure and function of cell organelles and other anatomical components. Covers macromolecules of the cell, biosynthesis, bioenergetics, metabolic regulatory mechanisms, membrane structure and transport, intracellular compartments and transport, cytoskeletal systems, cellular movement, cell communication and signal transduction mechanisms. Prerequisite/concurrent: BIO 260.

BIO 335 Microbiology (3-3-4). Covers the biology of microorganisms (viruses, bacteria, fungi and helminthes). Emphasizes the role they play in our lives, especially as related to epidemiology, health, prevention of infection and identification. Teaches sterile techniques, how to culture and identify bacteria, and how to control them in clinical, personal and environmental settings. Prerequisites: BIO 101 and BIO 101L. Lab/Tech fee rate A applies.

BIO 341 Principles of Pharmacology (3-0-3). Covers the general physical and chemical properties of drugs, along with their mechanisms of action and side effects. Relates drug-receptor interactions at the cellular level to pathophysiological effects on major organ systems. Explores the clinical application of a variety of medicinal drugs. Illustrates the fundamentals of drug discovery and pre-clinical development and the latest frontiers in drug delivery methods. Prerequisite: BIO 210.

BIO 347 Human Nutrition (3-0-3). Covers the concepts of human nutrition and its changes across the life span. Analyzes key information about essential macronutrients and micronutrients as well their metabolism. Explores nutritional assessment tools and crucial concepts related to nutritional deficiencies, prevention of disease, weight management, dietary analysis and the impact of exercise with evidence-based recommendations for maintaining a healthy weight and lifestyle. Prerequisite: BIO 210.

BIO 351 Conservation Biology (3-0-3). Analyzes principles of biological conservation at different scales. Addresses the scientific and technical means for protecting, maintaining and restoring biodiversity. Covers established and emerging diversity conservation approaches and strategies. Prerequisite: BIO 251.

BIO 355 Medical Parasitology (3-0-3). Covers the epidemiology of human parasitic infections, life cycles, routes of transmission, prevention and control measures, and parasites that infect humans. Focuses on the routine laboratory diagnostic methods and clinical picture. Explores the importance of medical parasitology through the study of waterborne and foodborne outbreaks and case presentations. Prerequisite: BIO 335.

BIO 361 Evolution and Biodiversity (3-0-3). Emphasizes principles of evolution as applied to all organisms. Covers the origins of life, the history of evolution, biogeography, population genetics, speciation, phylogenetic analysis, human evolution and applications to current problems in agriculture, species conservation, population dynamics and the effects of environmental change. Prerequisite/concurrent: BIO 260.

BIO 371 Principles of Neuroscience (3-0-3). Covers the basic principles of organization and function of the mammalian nervous system. Illustrates the function of neurons, synaptic transmission, sensory systems, and complex brain function. Emphasizes the key mechanisms involved in brain development, neural signaling and neural correlates of sensory perception. Discusses primary literature in neuroscience with emphasis on research in cellular physiology and sensory systems. Prerequisite: BIO 210.

BIO 372 Sensory Perception (3-0-3). Provides an in-depth understanding of different types of human sensory systems and their functional modalities. Examines how humans sense, process and perceive the world by discussing the biological

bases of how sensory functions are generated and modified. Emphasizes visual processing mechanisms such as object recognition, perceptual constancy and visual attention. Provides knowledge of sensory impairments and of common diseases and vulnerabilities of sensory systems. Prerequisite: BIO 210.

BIO 421 Marine Environments (2-3-3). Focuses on interactions between biological, chemical and physical processes in marine environments. Places strong emphasis on marine ecology and local fauna of the Gulf region. Includes the following topics: marine physics and chemistry and their importance to marine biology, oceanic plankton and nekton, deep-water biology, coastal habitats, energy flow, fisheries and marine conservation issues. Prerequisite: BIO 251. Lab/Tech fee rate A applies.

BIO 435 Applied and Environmental Microbiology (3-0-3). Covers key aspects of applied microbiology. Focuses on common practices in food, industrial and environmental microbiology. Explores functional diversity of microorganisms in relation to human welfare and ecosystem processes. Prerequisite: BIO 335.

BIO 481 Cellular and Molecular Immunology (3-0-3). Covers basic principles of cellular and molecular immunology with special emphasis on development of the immune system, innate and adaptive immunity, cells and tissues of the immune system, antibody structure and synthesis, complement pathways, antigen-antibody reactions, antigen presentation, humoral and cell-mediated immune responses, and transplantation. Discusses major topics related to diseases and conditions such as allergies, autoimmune diseases, and immunodeficiency. Prerequisite: BIO 335.

BIO 490 Research Methods and Practices in Biology (1-4-3). Covers research and analysis methods including proposal development, literature search, method development, experimental design, and best practices for biology experimental studies. Emphasizes the process of planning and conducting a research project in biology-related topics. Includes data collection and analysis as well as presentation of research findings in oral and written formats. Restricted to students in the biology major and biology minor. Prerequisite: junior II standing. Lab/Tech fee rate B applies.

BIO 491 Senior Research Project I (0-6-3). Requires selection of a biology problem for an independent research project. Upon approval of the department, the student begins with a literature search then follows up with laboratory studies. The results are then presented in a seminar as well as thesis form. Prerequisite: senior standing. Lab/Tech fee rate B applies.

BIO 492 Senior Research Project II (0-6-3). Continuation of BIO 491. Requires selection of a new or related biology problem for an independent research project. Upon approval of the department, the student begins with a literature search then follows up with laboratory studies. The results are then presented in a seminar as well as thesis form. Prerequisite: senior standing. Lab/Tech fee rate B applies.

CHM Chemistry

CHM 101 General Chemistry I (3-0-3). Covers the fundamental chemical principles, concepts and laws. Includes the following topics: reaction stoichiometry, types of chemical reactions, solution stoichiometry, gas laws, kinetic theory of gases, thermochemistry, atomic structure and periodicity, the Bohr model, Lewis structures, ionic and covalent bonding. Prerequisite/concurrent: CHM 101L.

CHM 101L General Chemistry Laboratory I (0-3-1). Introduces laboratory experiments that support the theoretical topics presented in CHM 101. Includes experiments related to the theoretical principles of general chemistry. Prerequisite/concurrent: CHM 101. Lab/Tech fee rate A applies.

CHM 102 General Chemistry II (3-0-3). Covers the liquid state and phase diagrams, properties of solutions, including colligative and chemical properties; reaction kinetics, acid-base and complex ion equilibria; laws of thermodynamics; enthalpy and free energy; and electrochemistry. Prerequisites: CHM 101 and CHM 101L; prerequisite/concurrent: CHM 102L.

CHM 102L General Chemistry Laboratory II (0-3-1). Introduces laboratory experiments that support the theoretical topics presented in CHM 102. Illustrates some fundamental concepts including physical properties of solutions, reaction kinetics, acid-base and chemical equilibrium, thermodynamics and electrochemistry. Prerequisite/concurrent: CHM 102. Lab/Tech fee rate A applies.

CHM 104 Basics of Chemistry (3-0-3). Introduces the fundamental chemical principles, concepts and laws. Includes atomic theory, atomic structure and periodicity; chemical bonding; reaction stoichiometry and chemical accounting; physical states and intermolecular forces; gas laws and the kinetic-molecular theory; acids; bases and redox reactions; nuclear chemistry; organic chemistry; and topics dealing with chemistry and everyday life. Not open to science and 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. Includes the following topics: alkanes and cycloalkanes; alkenes; alkynes; biologically active acetylenic compounds; electrophilic and nucleophilic reactions; resonance; alkyl halides; and SN1, SN2, E1 and E2 mechanisms. Prerequisites: CHM 102 and CHM 102L.

CHM 216 Organic Chemistry II (3-0-3). Deals with modern spectroscopic techniques for structure determination; chemistry of oxygen and nitrogen compounds; and chemistry of alcohols, ethers, carbonyl compounds and amines. Gives special attention to mechanistic aspects. Prerequisite: CHM 215.

CHM 217 Organic Chemistry Laboratory I (0-3-1). Includes experiments on purification, separation and identification techniques, as well as synthesis of various organic compounds. Prerequisite: CHM 215. Lab/Tech fee rate A applies.

CHM 218 Organic Chemistry Laboratory II (0-3-1). Includes experiments related to the theoretical principles and synthetic methods of modern organic chemistry. Prerequisites: CHM 216 and CHM 217. Lab/Tech fee rate A applies.

CHM 242 Quantitative Analysis (3-0-3). Introduces the basic theories underlying analytical methods of chemical analysis. Covers fundamentals and applications of electrochemistry, complexiметric titrations, gravimetric and combustion analysis, spectrophotometry and chromatography. Gives special attention to complex systems and analysis of environmental samples. Prerequisites: CHM 102 and CHM 102L.

CHM 243 Quantitative Analysis Laboratory (0-3-1). Comprises experiments that apply analytical methods to chemical analysis. Employs a variety of wet and dry analytical techniques associated with complex acid/base titrations systems, electrochemistry, complexiметric titrations, gravimetric and combustion analysis, and spectrophotometry. Emphasizes replicate measurements and statistical analysis. Prerequisite/concurrent: CHM 242. Lab/Tech fee rate B applies.

CHM 315 Organic Chemistry III (3-0-3). Covers chemistry and reactions of B-dicarbonyl compounds, neighboring group effects, phenols, aryl halides, electrocyclic and cycloaddition reactions, thiols, reactions and synthesis of heterocyclic amines, carbohydrates, amino acids, proteins, and natural and synthetic polymers. Prerequisite: CHM 216.

CHM 325 Inorganic Chemistry (3-0-3). Covers the fundamental principles in inorganic chemistry. Includes topics such

as atomic structure, molecular models, Lewis structure, electron pair repulsion model, molecular symmetry, molecular orbital theory, acid-base properties, bonding theory and electronic spectra, coordination chemistry and reaction mechanisms, organometallic chemistry, and the applications of transition metal catalysts in organic synthesis. Prerequisites: CHM 102 and CHM 102L.

CHM 326 Inorganic Chemistry Laboratory (0-3-1). Covers the practical aspect of inorganic chemistry through the synthesis and characterization of selected inorganic complexes and materials. Provides hands-on experience on a wide range of spectral and analytical methods. Prerequisite/concurrent: CHM 325. Lab/Tech fee rate B applies.

CHM 330 Physical Chemistry I (3-0-3). Investigates in depth the basic concepts of thermodynamics. Analyzes the properties of gases as the basis for the study of the laws of thermodynamics that apply to questions of chemical equilibrium, phases and solutions, phase equilibrium and other applications. Prerequisites: CHM 102, CHM 102L and MTH 104.

CHM 331 Physical Chemistry II (3-0-3). Covers kinetics, electrochemistry, surface chemistry and transport properties. Emphasizes the theory of reaction rates and methods of handling kinetic data. Examines the conventions, underlying theory and practical applications of electrochemical cells. Prerequisite: CHM 330 or CHE 214.

CHM 333 Physical Chemistry Laboratory (0-3-1). Comprises hands-on experiments that cover topics included in thermodynamics. Covers bomb calorimeter, heat of solution, phase diagrams for two- and three- component systems, variation of equilibrium constant with temperature and partial molar volume. Requires submission of an original report after each experiment, including sample calculations and error analysis. Prerequisite/concurrent: CHM 330. Lab/Tech fee rate B applies.

CHM 334 Biochemistry Laboratory (0-3-1). Comprises hands-on experiments that cover topics in enzyme kinetics and inhibition, protein purification, protein and nucleic acids denaturation, transport phenomena, and computational chemistry. Covers recent techniques utilized in biochemical research. Requires submission of an original report after each experiment, including sample calculations and error analysis. Prerequisite/concurrent: CHM 350. Lab/Tech fee rate B applies.

CHM 345 Instrumental Analysis (2-3-3). Introduces modern instrumental methods of analysis utilized by scientists and engineers. Provides an understanding of the principles, laws and operation of modern instrumentation. Reviews spectroscopic methods: mass, molecular, optical, flame and plasma. Surveys electrochemical, analytical and chromatographic techniques. Prerequisites/concurrent: CHM 242 and CHM 243. Lab/Tech fee rate B applies.

CHM 350 Biochemistry (3-0-3). Introduces the fundamental principles of biochemistry: protein structure and function; carbohydrates; lipids and the structure of biological membranes; enzymatic catalysis and regulations; and metabolism of carbohydrates, lipids and amino acids. Discusses the vital relationship between structure and function of major organic macromolecules. Surveys fundamental nucleic acid and protein biochemistry topics such as DNA replication, transcription and translation. Prerequisite: CHM 215.

CHM 362 Inorganic Biochemistry (3-0-3). Covers essential elements, harmful elements, naturally occurring ligands, chelating ligands and ligands used in chelate therapy. Examines functions of metals, principles of bioinorganic coordination chemistry, template effect, spontaneous self-assembly, properties of biological molecules, transport of metal ions, control and utilization of metal-ion concentrations, DNA binding, enzymes exploiting acid catalysis, pharmaceutical and medicinal applications. Prerequisite/concurrent: CHM 350.

CHM 368 Molecular Biochemistry (3-0-3). Focuses on bioorganic reactions of biomolecules and biological pathways. Discusses the structures and the chemical reactions of carbohydrates, lipids, peptides and proteins. Describes the organic reactions and mechanisms of biological pathways and the catalytic activity of proteins for these reactions. Examines enzyme catalysis of nucleophilic substitution, elimination, condensation and rearrangement reactions. Covers different synthetic enzyme models and the biotechnological applications of enzymes. Prerequisite/concurrent: CHM 350.

CHM 382 Forensic Chemistry (3-0-3). Provides a theoretical understanding and introduces practical applications of forensic chemistry in criminal, environmental and other investigations. Covers physical evidence and basic chemical techniques used in the forensic field. Focuses on chemical problems most frequently encountered in crime labs including forensic aspects of arson, drug identification, toxicology and trace analysis. Prerequisite: CHM 215.

CHM 415 Spectroscopy in Organic Chemistry (3-0-3). Deals with modern methods of structure determination employing spectroscopic techniques and stereochemistry. Includes the following topics: infrared spectroscopy of organic functional groups; nuclear magnetic spectroscopy (NMR) (chemical shifts, coupling constants, first- and second-order spectra, two-dimensional spectroscopic methods); ultraviolet spectroscopy, its origin and applications to different chromophores; mass spectrometry (spectrum generation, interpretation and fragmentation patterns of various classes of organic compounds); and solving combined structure problems. Prerequisite: CHM 216.

CHM 420 Nucleic Acids Biochemistry (3-0-3). Focuses on the structure, function and metabolism of nucleic acids. Discusses small-molecule-nucleic acid and protein-nucleic acid interactions. Includes topics related to the biophysical and biochemical properties of nucleic acids including DNA and RNA structure, DNA methylation, histone modification and mRNA processing. Examines mechanisms related to DNA replication and repair, DNA transcription, regulation of gene expression and RNA-dependent DNA/RNA synthesis. Covers recent laboratory techniques related to nucleic acids and their application in biotechnology. Prerequisite/concurrent: CHM 350.

CHM 430 Physical Biochemistry (3-0-3). Discusses the physical chemistry of biological and biochemical molecules. Covers topics related to biophysical chemistry including equilibria in biochemical systems, binding of small molecules and ions to macromolecules, cooperative phenomena, enzyme kinetics, the physical chemistry of nucleic acids, and the relationship between structure and function of biological macromolecules. Prerequisite/concurrent: CHM 350.

CHM 436 Enzyme Kinetics and Biochemistry (3-0-3). Presents the different types and classifications of enzymes. Focuses on holoenzymes, apoenzymes, cofactors, coenzymes, prosthetic groups, metalloenzymes, turnover number, enzyme activity and specific activity. Emphasizes multienzyme systems and multifunctional enzymes with specific examples and significance. Covers enzyme kinetics with emphasis on Michaelis-Menten, sequential and ping-pong mechanisms. Discusses enzyme inhibition and isotope exchange method for determining the bisubstrate reactions. Prerequisite/concurrent: CHM 350.

CHM 490 Research Methods and Practices in Chemistry and Biochemistry (1-4-3). Covers research and analysis methods including proposal development, literature search, method development, experimental design and best practices for chemistry experimental studies. Emphasizes the process of planning and conducting a research project in chemistry-related topics. Includes data collection and analysis as well as presentation of research findings in oral

and written formats. Restricted to students in the chemistry and biochemistry major. Prerequisite: junior II standing. Lab/Tech fee rate B applies.

CHM 491 Senior Research Project (0-6-3). Requires the selection of a chemistry problem for an independent research project. Involves a literature search and laboratory studies. Involves presentation of experimental results in a seminar as well as thesis form. Prerequisite: senior standing. Lab/Tech fee rate B applies.

DSC Data Science

DSC 210 Introduction to Data Science (3-0-3). Introduces the fundamentals of data science. Covers topics needed to solve data science problems which includes data gathering, data wrangling, data visualization, basic statistical data analysis methods and key machine learning algorithms. Discusses case studies and essential ethical issues. Prerequisite: STA 201.

DSC 220 Python Programming for Data Science (3-0-3). Explores Python programming skills relevant to data science. Provides studies with hand-on experience in using Python libraries and packages like NumPy, Pandas and Matplotlib required for data manipulation and processing, data analysis, data visualization and machine learning. Prerequisites: CMP 120, DSC 210 and MTH 213.

DSC 250 Exploratory Data Analysis (3-0-3). Discusses tools and methodologies employed in exploratory data analysis, including data visualization, univariate and multivariate descriptive statistics, inferential statistics, feature selection, feature engineering and dimensionality reduction. Provides the skills required to identify patterns and evaluate analytical outcomes. Prerequisites: CMP 120 and STA 201.

DSC 280 Introduction to Probability for Data Science (3-0-3). Introduces random variables, discrete and continuous univariate and multivariate probability distributions, and conditional and independent probability events. Covers moments, variance, moment generating functions, central Limit Theorem and likelihood function. Discusses applications of probability in data science. Prerequisites: MTH 104 and STA 201.

DSC 310 Data Visualization (3-0-3). Introduces various data visualization techniques to uncover hidden patterns in the data. Covers univariate and bivariate charts, dimension reduction techniques for data visualization, network analysis and cluster analysis. Prerequisite: DSC 250.

DSC 320 Statistical Methods in Finance (3-0-3). Introduce statistical analysis and modeling methods that are commonly used in the finance industry. Covers statistical properties of returns, regression analysis, multivariate analysis with applications in Markowitz's portfolio management, modelling and estimation of volatilities, statistical trading strategies, calculation of financial risks, nonparametric methods with applications to option pricing and interest rate markets. Uses the software in R. Prerequisite: STA 201 or STA 202 or NGN 211.

DSC 330 Regression Modeling (3-0-3). Introduces several topics in regression modeling including analysis of variance, multiple comparisons, inference about populations proportion, simple and multiple regression, parameters estimation, regression diagnostics, polynomial regression, basis regression, model selection and logistic regression. Prerequisites: DSC 280 and MTH 221.

DSC 380 Introduction to Machine Learning and Data Mining (3-0-3). Introduces the fundamentals of data mining and techniques used to analyze big data. Equips students with essential theory and skills for analyzing large datasets, building models and deriving insights. Covers the foundations of machine learning such as supervised and unsupervised techniques including regression modeling, logistic regression, KNN, LDA, QDA, decision tree, random forests, clustering and model comparison. Prerequisites: DSC 250 and DSC 330.

DSC 385 Computing in Data Science (3-0-3). Explore the basics of computational techniques for the purpose of performing statistical inference. Covers Monte Carlo methods, matrix computations for linear models, resampling methods for statistical inference, and some nonparametric techniques. Focuses on the implementation of techniques using a programming language such as Python or R. Prerequisites: DSC 280 and MTH 221.

DSC 410 Text Mining (3-0-3). Covers the fundamentals of text mining and analytics including basic natural language processing techniques, document representation, text categorization and clustering, document summarization, sentiment analysis, social network and social media analysis, probabilistic topic models and text visualization. Uses statistical software. Prerequisite: DSC 380.

DSC 420 Blockchain, Digital Currencies and Financial Technology (3-0-3). Introduces the foundational concepts and applications of blockchain technology, which is increasingly critical in the financial sector and beyond. Explores blockchain transactions, anonymity features, cryptography, and consensus algorithms. Examines the regulatory landscape, the economics of tokens, and emerging financial technologies like decentralized finance, non-fungible tokens, and the metaverse. Explores practical applications, incorporating the use of statistical analysis and computational tools relevant to blockchain and financial technologies. Uses the software in R and Solidity. Prerequisite: DSC 385.

DSC 430 Applied Time Series (3-0-3). Introduces the fundamentals of time series modeling and their applications. Covers various time series models including Autoregressive, Moving average, ARMA, ARIMA, and SARIMA. Prerequisite: DSC 330.

DSC 450 Statistical Network Analysis and its Applications (3-0-3). Introduces statistical modeling of social science, financial, medical and criminal networks. Covers techniques from graph theory and notation, manipulation and visualization of network data, descriptive analysis of network characteristics, and statistical modeling of network graphs. Uses the software R for network data management, statistical analysis and visualization. Prerequisites: DSC 310 and DSC 385.

DSC 460 Introduction to Multivariate Data Analysis (3-0-3). Covers several statistical techniques for analyzing multivariate data including inference for mean vector, multivariate analysis of variance, multivariate regression, discrimination and classification, principal component analysis, exploratory factor analysis, confirmatory factor analysis and canonical correlation. Prerequisite: DSC 330.

DSC 470 Advanced Data Mining Techniques (3-0-3). Covers foundation and theory of supervised and unsupervised machine learning methods including linear and non-linear regressions, splines, generalized additive models, regularization, support vector machines, ensembling, clustering, principal component analysis, rare event modeling, and association and sequence analysis. Prerequisite: DSC 380.

DSC 480 Deep Learning (3-0-3). Introduces the fundamental concepts and computational techniques of neural networks. Covers several architectures of neural networks, including single layer perceptron, multilayer perceptrons, radial-basis function networks, recurrent neural networks, long short-term memory networks and convolutional neural networks. Discusses training methodologies such as backpropagation, gradient descent and regularization techniques. Focuses on hands-on projects using deep learning techniques to solve real-world problems such as pattern recognition. Prerequisite: DSC 380.

DSC 490 Senior Project (0-6-3). Includes faculty-supervised projects on specific topics within data science and their

applications, focusing on areas of current interest. Requires both oral and written presentation on the topics. Restricted to BSDSC students. Prerequisite: senior standing.

DSC 497 Internship in Data Science (0-0-0). Provides opportunities for the application of data science knowledge and skills to actual problems in a real-life work setting. Enhances learning and soft skills through practical experience. Reinforces objective-setting and performance measurement through a structured reporting process. Requires a minimum duration of five weeks (200 hours) of on-the-job training in an approved organization. Graded as Pass/Fail. Restricted to BSDSC students. Prerequisites: junior standing and approval of the internship coordinator. Registration fee applies.

ENG English

English Language

ENG 203 Writing about Literature (3-0-3). Builds upon the skills acquired in WRI 102 to develop further critical thinking and academic writing competencies. Requires reading of short stories, poetry and drama and producing a research paper using analytical and critical skills in response to literary texts. Either ENG 203 or ENG 204 can be used to meet the general education communication requirement. Prerequisite: WRI 102.

ENG 204 Advanced Academic Writing (3-0-3). Builds upon the skills acquired in WRI 102 to further develop critical thinking and academic writing competencies. Requires reading and responding to a variety of non-literary texts and drawing on these texts to produce a research paper in which the students' arguments demonstrate analytical and critical thinking skills. Either ENG 203 or ENG 204 can be used to meet the general education communication requirement. Prerequisite: WRI 102.

ENG 207 Professional Communication for Engineers (3-0-3). Develops technical writing and professional communication skills through engineering multidisciplinary projects (EMDPs). Analyzes, through EMDPs and teamwork, the distinctive features of various professional oral and written genres. Develops and enhances work ethics, leadership, interpersonal and decision-making skills. Restricted to engineering students. Prerequisite: ENG 204.

ENG 208 Public Speaking (3-0-3). Introduces the art of public speaking, debate and argument. Develops confidence in public speaking through introducing the techniques of making effective presentations and through extensive practice in public speaking. Prerequisite: ENG 203 or ENG 204.

ENG 223 Introduction to Language Study (3-0-3). Defines language and how it works. Encourages the examination of beliefs and attitudes about language and provides the techniques of language analysis. Covers structure and appropriate usage, the nature of the rules governing the sound system of language, inflectional and derivational rules in language, and sentence formation processes, and introduces various approaches to the study of meaning in language. Prerequisite: WRI 102.

ENG 224 English Grammar (3-0-3). Focuses on the fundamental rules of English grammar as they relate to sentence structure and function. Explores different systems of analysis, including an introduction to the analysis of texts. Prerequisite: WRI 102.

ENG 225 Writing for Business (3-0-3). Aims to develop skills in writing business documents such as CVs, correspondence, memoranda, short and long reports, and proposals necessary to communicate effectively in the business world. Prerequisites: ENG 203 or ENG 204, and sophomore standing.

ENG 234 Language in Society (3-0-3). Introduces the sociolinguistic approach to language. Explores definitions of language, dialect, diglossia and multilingualism. Focuses on how language structure and language use are interrelated and examines variables responsible for language variation within a speech community. Prerequisite: WRI 102.

ENG 302 Stylistics (3-0-3). Examines the essential concepts and techniques of the linguistic analysis of style. Uses selected literary and non-literary texts to illustrate and explain a variety of English language structures. Explores how language creates meaning and influences human behavior. Prerequisite: ENG 210 or ENG 223 or ENG 224.

ENG 321 Language and Culture (3-0-3). Examines the ways in which language and culture influence human interaction in a variety of cultural and interpersonal contexts. Covers a broad range of topics, including identity, verbal and nonverbal styles of communication, and cross-cultural communication. Prerequisite: ENG 203 or ENG 204 or ENG 223 or ENG 234.

ENG 326 Development of the English Language (3-0-3). Examines the development of the English language from its Indo-European roots to the present day. Emphasizes linguistic change in English throughout its history. Prerequisites: ENG 203 or ENG 204, and ENG 223.

ENG 331 The Sound Patterns of Language (3-0-3). Examines the nature of the rules governing the sound system of language with special emphasis on English. Explores the study of the physiology of speech production and phonetic transcription. Examines inflectional and derivational rules in language and word formation. Prerequisites: ENG 203 or ENG 204, and ENG 223.

ENG 332 The Psychology of Language (3-0-3). Explores the relationship between language and the mind. Examines processes involved in comprehension, production and acquisition of language, and addresses research techniques and linguistic data collection. Prerequisites: ENG 203 or ENG 204, and ENG 223.

ENG 334 Meaning in Language (3-0-3). Introduces various approaches to the study of meaning in language, examining linguistic reference and truth conditions of linguistic signs and expressions. Explores inferential strategies, presuppositions and speech acts in human communication, and situational context determining language use. Prerequisite: ENG 223 or ENG 224 or ENG 234.

ENG 372 English and Globalization (3-0-3). Discusses the role of English in globalization processes. Examines how the use of global English in education, the workplace and society transforms local cultures and affects national languages and identities. Prerequisite: ENG 203 or ENG 204 or ENG 223 or ENG 234.

ENG 382 Language Variation in Media (3-0-3). Studies texts from different media types to examine variation in English based on text-type, genre, register, and ideological and social backgrounds. Introduces corpus-based research methodologies. Prerequisite: ENG 223 or ENG 224 or ENG 234.

ENG 385 Language and Gender (3-0-3). Examines the reasons behind the differences in men's and women's talk. Explores how categories of language influence one's belief about one's self and others and the ways in which gendered language use relates to power and dominance in society. Prerequisite: ENG 203 or ENG 204 or ENG 223 or ENG 234.

ENG 401 Advanced English Grammar (3-0-3). Provides an intensive investigation into contemporary English sentence structure, function and meaning. Analyzes how structure types and sentence relationships are realized in various texts and genres. Discusses issues relative to descriptive/ prescriptive approaches to language. Prerequisite: ENG 223 or ENG 224.

ENG 405 Discourse Analysis (3-0-3). Explores the interpretation of meaning situated beyond the level of the sentence. Discusses linguistic representation, intent,

perception and coherence in conversational interactions, written texts and digital media. Examines variation in English based on text-type, genre, register, and ideological and social backgrounds using corpus-based research methodologies. Prerequisites: ENG 203 or ENG 204, and ENG 223 or ENG 224.

ENG 420 Teaching and Learning English as a Foreign Language (3-0-3). Provides a practical and comprehensive pedagogy approach to teach students the skills needed to meet the needs of language learners in today's diverse classrooms. Encourages students to develop a personal approach to foreign language teaching. Prerequisites: ENG 203 or ENG 204, and ENG 223.

ENG 490 Senior Research Project (3-0-3). Focuses on the study of a literary movement/literary writer or qualitative/quantitative investigation of a linguistics issue of the student's and professor's choice. Includes the writing of a long critical paper/creative work/response to a specific literary problem, or reporting research findings in a journal article-length paper. Prerequisite: senior standing.

ENG 495 Seminar in English (3-0-3). Focuses on various topics in English language or English literature. The focus of the course is specified at the offering time. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications. Prerequisite: junior standing.

ENG 497 Internship in English Language and Literature (0-0-0). Provides an opportunity to develop professional skills through a five-week internship (200 hours) in a relevant field such as education, media, publishing, business, law, cultural institutions, tourism and hospitality, or non-governmental organizations. Graded as Pass/Fail. Prerequisites: junior II standing and approval of the internship coordinator. Registration fee applies.

English Literature

ENG 185 Playing with Texts (3-0-3). Introduces disciplines associated with the study of English. Explores linguistic, literary and rhetorical topics through viewing and analyzing short texts, such as real-world texts, songs, poems, films, short stories and graphics texts. Restricted to students with less than 60 credit hours. Prerequisite: WRI 101.

ENG 196 Technologies of Text (3-0-3). Examines the history and futures of technological innovation in reading and writing. Explores how textual technologies, from papyrus to the printing press to the digital algorithm, shape the composition, reading, and interpretation of literary and non-literary texts. Prerequisite: WRI 101.

ENG 201 Introduction to Creative Writing (3-0-3). Provides an introduction to the creative writing craft. Explores the elements of writing and evaluating poetry, fiction and creative non-fiction. Prerequisite: WRI 102.

ENG 210 Introduction to Literature (3-0-3). Focuses on the study of fiction, poetry and drama and shows how writers use the basic elements of their craft to convey insights into human conditions. Prerequisite: WRI 102.

ENG 214 Seventeenth to Nineteenth Century American Literature (3-0-3). Examines American literature from the colonial period to 1900, concentrating on the philosophical, social and political issues that shaped various American writers. Prerequisite: ENG 203 or ENG 204.

ENG 250 World Literature (3-0-3). Examines representative works of world literature from early writing to the modern era. Emphasizes literary aspects of texts, including structure and technique, as well as the ways in which specific cultural and historical contexts shape the forms and purposes of storytelling. Prerequisite: WRI 102.

ENG 300 Literary and Critical Theory (3-0-3). Examines a variety of critical practices and theoretical approaches to the study of literature. Applies theoretical and critical approaches to literary texts. Prerequisites: ENG 203 or ENG 204, and ENG 210.

ENG 303 Global Shakespeare (3-0-3). Examines representative dramatic works of Shakespeare and their modern adaptations across diverse geographies and cultures. Considers the original contexts and significance of his plays and the different purposes to which they have been adapted in writing and film productions. Prerequisite: ENG 203 or ENG 204 or ENG 210 or ENG 250.

ENG 305 Contemporary World Literature (3-0-3). Examines contemporary literary movements and forms in the works of global writers in English or in translation. Addresses the implications of translation and the impacts of issues such as the rise of capitalism, globalization, colonization/decolonization, war, global migration, travel and displacement on literature and culture. Prerequisites: ENG 203 or ENG 204, and ENG 210 or ENG 250.

ENG 308 British Literature Until 1600 (3-0-3). Surveys English and related literatures from the Anglo-Saxon period through Shakespeare. Studies texts in the context of their social, political and historical influences. Prerequisite: ENG 203 or ENG 204.

ENG 309 British Literature: 1600–1800 (3-0-3). Examines the transition in literature and thought from the Jacobean Age to the Enlightenment and the beginning of Romanticism. Prerequisite: ENG 203 or ENG 204.

ENG 311 Twentieth Century British Literature (3-0-3). Focuses on 20th century British poetry and prose, examining the causes of the rise of modernism and the subsequent development of post-modernism, as well as the persistence of traditional forms such as realism and fantasy. Prerequisite: ENG 203 or ENG 204.

ENG 314 Twentieth Century American Literature (3-0-3). Examines American literature from 1900 to the present, concentrating on the philosophical, social and political issues that shaped the work of writers. Discusses the changing form and content of American fiction, drama, poetry and essay, as well as relevant literary theories. Prerequisite: ENG 203 or ENG 204.

ENG 315 Colonial and Post-Colonial Literature (3-0-3). Examines representations of colonialism and post-colonialism in literature. Explores the historical, political and cultural contexts of these literary works, including the ways they address issues of identity, dissent, nationhood, justice and cultural heritage. Engages critical and theoretical discussions of colonialism and post-colonialism. Prerequisites: ENG 203 or ENG 204, and ENG 210 or ENG 250.

ENG 340 Comics (3-0-3). Studies comics from a variety of genres to assess the ways in which the relationships between image and text convey message and meaning. Critiques comics' relationship to culture, ideology, and practices of media production and consumption. Prerequisite: ENG 203 or ENG 204 or ENG 210.

ENG 345 Writing Narrative Nonfiction (3-0-3). Focuses on the creation of short and long prose works in narrative nonfiction, ranging from flash nonfiction to travel writing to memoir writing. Analyzes literary devices and narrative techniques in narrative nonfiction. Explores the use of these devices and techniques to evoke characters and places in narrative nonfiction work. Prerequisite: ENG 203 or ENG 204 or ENG 210.

ENG 369 Poetry and Poetics (3-0-3). Focuses on the study of poetry written in or translated into English. Explores the elements of poetic structure and diverse poetic forms. Analyzes the ways in which historical, cultural, and aesthetic contexts shape poetic language, forms, and meaning. Prerequisite: ENG 203 or ENG 204 or ENG 210.

ENG 378 Literature as Film (3-0-3). Uses literary works and their cinematic

adaptations to introduce film theory ideas and their parallel techniques in literature. Prerequisite: ENG 203 or ENG 204 or ENG 210 or ENG 250.

ENG 393 Shakespeare on Film (3-0-3). Uses an interdisciplinary approach (incorporating English literature and media/film studies) to teach how to synthesize elements of film theory and literary criticism and incorporate them into a series of research papers. Prerequisite: ENG 203 or ENG 204.

ENG 410 The American Novel (3-0-3). Examines the styles and concerns of the American novel from the 19th century to the present and includes representative examples of such national and international literary movements as romanticism, realism, modernism, postmodernism and magic realism, with particular emphasis on how American novelists adapted these styles to suit their own society and culture. Prerequisite: ENG 210 or ENG 214 or ENG 305 or ENG 314.

ENG 416 Modern Drama and Beyond (3-0-3). Analyzes the theory, practice and production of drama. Examines major literary developments in drama from the modern period to the present. Prerequisites: ENG 203 or ENG 204, and ENG 210 or ENG 250.

ENG 421 The Novel (3-0-3). Assesses the development of the novel as a literary form from its rise in the early 18th century through its development in different historical and cultural contexts. Prerequisites: ENG 203 or ENG 204, and ENG 210 or ENG 250.

ENG 490 Senior Research Project (3-0-3). Focuses on the study of a literary movement/literary writer or qualitative/quantitative investigation of a linguistics issue of the student's and professor's choice. Includes the writing of a long critical paper/creative work/response to a specific literary problem, or reporting research findings in a journal article-length paper. Prerequisite: senior standing.

ENG 495 Seminar in English (3-0-3). Focuses on various topics in English language or English literature. The focus of the course is specified at offering time. Consult the online course catalog or the online class schedule accessible via the AUS student information system to verify course classifications. Prerequisite: junior standing.

ENG 497 Internship in English Language and Literature (0-0-0). Provides an opportunity to develop professional skills through a five-week internship (200 hours) in a relevant field such as education, media, publishing, business, law, cultural institutions, tourism and hospitality, or non-governmental organizations. Graded as Pass/Fail. Prerequisites: junior II standing and approval of the internship coordinator. Registration fee applies.

ENV Environmental Science

ENV 100 Principles of Environmental Science (3-0-3). Introduces the basic principles of environmental science. Explores the scientific method, structure of matter, energy principles, ecological concepts, organism interactions, communities and ecosystems, population dynamics, energy sources, biodiversity, human activities and the environment, managed ecosystems, water management, air quality and solid waste management. Not open to engineering and science students.

ENV 150 Introduction to Environmental Sustainability (3-0-3). Introduces the basic concepts of environmental sustainability. Employs the UN Sustainable Development Goals as a structure to discuss environmental aspects of society's development in regards to economic and social considerations. Covers concepts such as human population growth, biodiversity conservation, food, water and energy security, and waste management. Prerequisites: CHM 101 and CHM 101L, or CHM 104 or ENV 100.

ENV 201 Fundamentals of Environmental Sciences and Sustainability (3-0-3). Combines ideas and information from chemical, physical and biological disciplines. Provides information on how nature works and how environmental systems are interconnected. Employs scientific laws, principles and concepts to help understand environmental and resource problems, to achieve environmental sustainability. Makes connections between natural systems and environmental issues using different physical science perspectives. Presents information that will ultimately be related to real-world environmental problems and environmental sustainability. Prerequisites: CHM 101 and CHM 101L.

ENV 252 Environmental Chemistry and Analysis (3-0-3). Investigates the interaction between natural systems and human activity. Emphasizes the following topics: aquatic chemistry, with special attention to water pollution, analysis and treatment; atmospheric chemistry, with emphasis on air pollution, ozone depletion and global atmospheric problems; soil chemistry; and organic and inorganic pollutants such as heavy metals, persistent organic pollutants and other pollutants of concerns. Covers the analytical techniques for the analysis of pollutants in the different environmental compartments. Explores local and regional pollution problems in detail. Prerequisites: CHM 102 and CHM 102L.

ENV 253 Environmental Chemistry and Analysis Laboratory (0-3-1). Comprises experiments that apply analytical methods for the assessment of environmental samples. Focuses on the sample preparation, bench analytical techniques such as titrations and instrumental analysis such as spectrometry, chromatography, optical, flame and plasma techniques required for the assessment of chemicals in the atmosphere, soil and water. Prerequisite/concurrent: ENV 252. Lab/Tech fee rate A applies.

ENV 280 Environmental Health and Policy (3-0-3). Introduces topics related to environmental health, environmental epidemiology, environmental toxicology, policy and regulations. Analyzes applications of environmental health, management and safety that involves air quality, food and water safety, waste generation and disposal, and occupational health. Prerequisite: ENV 100 or ENV 150 or ENV 201.

ENV 311 Environmental Modeling (3-0-3). Deals with the study, collection, evaluation and interpretation of data and the modeling and analysis of urban and environmental problems. Includes topics such as population, pollution, mass transportation systems and climate modeling. Prerequisites: BIO 251 and MTH 103.

ENV 352 Environmental Toxicology and Risk (3-0-3). Combines principles of chemistry, biochemistry, biology and environmental science. Discusses the basic principles of environmental toxicology, including toxicant fate, bioavailability, bioaccumulation and biomagnification; dose-response relationships, toxicity testing, species sensitivity distributions; and individual, population and community effects. Covers in detail the principles of risk assessment and risk management of toxicants for a more sustainable environment. Prerequisite: CHM 215.

ENV 356 Climate Change (3-0-3). Explores climate systems, the science and politics of climate change, how the climate system works, and the factors that cause the climate to change across different time scales. Covers the connection between human activity and the potential social, economic and environmental consequences of climate change. Prerequisite: ENV 100 or ENV 201 or ENV 252.

ENV 365 Environmental and Sustainability Management Systems (3-0-3). Discusses the differing models of management systems for environmental protection, occupational health and safety, and sustainability. Considers environmental policy on a local, regional and international level. Focuses on the methods of ISO 14001 Environmental Management

Systems, developing aspects registry, objectives and targets lists, EMS plans, and environmental policies. Prerequisites: ENV 100 or ENV 150 or ENV 201, and junior standing.

ENV 451 Sustainable Waste Management (3-0-3). Introduces the concepts of solid and liquid waste treatment, and sustainable waste management. 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 201.

ENV 465 Environmental Impact Assessment and Monitoring (3-3-4). Considers the use, procedures and policies regarding Environmental Impact Assessments (EIA) in the UAE and regional development. Reviews the use of environmental monitoring techniques in the development of EIA baseline studies, research and environmental management. Covers the sampling, storage, preservation and analytical techniques critical in obtaining quality data for environmental monitoring in each component of the environment, along with the difficulties in maintaining sample and analyte integrity throughout the process. Prerequisites: ENV 252, STA 201 and junior standing. Lab/Tech fee rate B applies.

ENV 490 Research Methods and Practices in Environmental Sciences and Sustainability (1-4-3). Covers research and analysis methods including proposal development, literature search, method development, experimental design and best practices for environmental science and sustainability experimental studies. Evaluates scientific, ethical and legal dimensions of the environmental sustainability problem investigated. Emphasizes the process of planning and conducting a research project in environmental sustainability-related topics. Includes data collection and analysis as well as presentation of research findings in oral and written formats. Restricted to students in the environmental sciences and sustainability major. Prerequisite: junior II standing. Lab/Tech fee rate B applies.

ENV 491 Senior Research Project (0-6-3). Investigates in depth an environmental problem within the context of an independent research project. Involves literature search followed by field and laboratory studies. Evaluates scientific, ethical and legal dimensions of the problem investigated. Requires attendance and commentary on related seminars and tests on assigned topics as well as the presentation of results in both oral and thesis formats. Prerequisite: ENV 490. Lab/Tech fee rate B applies.

ENV 497 Internship in Environmental Sciences and Sustainability (0-0-0). Requires a minimum of five weeks of approved applied work in environmental aspects with a governmental, municipal or private organization. Graded as Pass/Fail. Prerequisites: junior II standing and approval of internship coordinator. Registration fee applies.

FRN French

FRN 100 Elementary French I (3-2-3). Covers the essential elements of French language at a basic level. Focuses on listening, speaking, reading and writing through communicative-based language use and activities.

GEO Geography

GEO 201 World Cultural Geography (3-0-3). Provides a broad survey of the cultural geography of the world. Addresses cultural systems, agriculture and natural resources, urbanization, industrialization, development and political geography, among other topics. Prerequisite/concurrent: WRI 102.

HIS History

HIS 204 Modern Arab History (3-0-3). Studies the history of the modern Arab world focusing mainly on the history of the region from 1800 and the changes that began to take place at that time. Concentrates on four aspects of the region's transformation: the experience of imperialism and colonialism, modernity, nationalism and the development of the modern state system. Prerequisite: WRI 102.

HIS 205 World History I: Ancient and Medieval Worlds (3-0-3). Surveys selected human societies of the ancient and medieval world, concentrating on their internal developments and cross-cultural contacts. Examines the rise of cities, organization of complex societies, the evolution of technology, advancements in agriculture, the evolving conduct of warfare, and the emergence of world religions. Prerequisite: WRI 101.

HIS 206 World History II: The Modern World (3-0-3). Surveys a global selection of themes and developments in the early modern and modern eras: the intensification of long-distance trade and migration, imperialism, political and economic revolutions, the rise of the nation-state, global conflicts, transformations in societies, and the impact of these changes on local and global cultures. Prerequisite: WRI 101.

HIS 208 Women in History (3-0-3). Comparatively surveys women's history from antiquity to the present in Europe and the Middle East. Aims to examine the lives, achievements, contributions and position of women historically, as well as to introduce the methodology of women's history, the sources for the study of women and the theories that provide the framework for the research and writing of women's history. Prerequisite: WRI 102.

HIS 210 The Making of Modern Europe (3-0-3). Introduces modern European history by exploring the key events and trends that have shaped Europe from 1789 to the present. Investigates the French Revolution, the Industrial Revolution, European imperialism, the development of nationalism, the First World War, the Russian Revolution, the rise of fascism, the Second World War, the Cold War, the collapse of the Soviet Union and development of the European Union. The course will also focus on the key social, demographic and cultural trends that have redefined European life in the 19th and 20th centuries. Prerequisite: WRI 102.

HIS 217 The World in the 20th Century (3-0-3). Surveys the events of the long 20th century from a global perspective. Examines high imperialism, the fall of traditional empires, the rise of the nation-state, global industrialization, the emergence of socialism, totalitarian experiments, the world wars and the Cold War, decolonization, the rise of non-state actors and globalization of culture. Prerequisite: WRI 102.

HIS 221 History of Science and Technology (3-0-3). Studies the development of scientific thought and methodology from ancient Greece to the modern era. Covers topics such as contributions of China, Islamic lands and Europe; the surge of French and 17th century English science; and the influence of science on patterns of thinking and behavior. Touches upon diverse areas such as the histories of astronomy, nuclear energy, chemistry and forensics, as well as life and environmental sciences. Prerequisite/concurrent: WRI 102.

HIS 222 African History since 1800 (3-0-3). Surveys key events and themes in the history of sub-Saharan Africa since 1800. Covers the pre-colonial, colonial and post-colonial eras. Addresses topics such as the slave trade and abolition, nation-building, the creation and consolidation of colonial systems, and decolonization. Prerequisite: WRI 102.

HIS 224 History of Modern South Asia (3-0-3). Examines the history of South Asia since the 1800s. Explores the transition to colonial rule and focuses on

the various ideologies and policies that shaped the imperial administration. Evaluates the political, economic, social and cultural transformation of South Asia during colonial rule and decolonization. Prerequisite: WRI 102.

HIS 226 Maritime History and Culture (3-0-3). Examines the complex interactions between the peoples of the world through the perspective of maritime history. Focuses on the development of maritime technology, expansion of seaborne trade and the establishment of maritime legal regimes. Analyzes the relationship between coastal and inland communities and discusses the oceanic cross-cultural exchanges in human history. Prerequisite: WRI 102.

HIS 228 History of Medicine (3-0-3). Surveys the history of medicine from Antiquity to the early 19th century. Examines the emergence of medicine in antiquity, considers the transfer of medical knowledge from the Islamic world in the Medieval Period and the transformation of medicine during the Scientific Revolution and the Enlightenment. Analyses the changing concepts of the body, life, health and disease to investigate the rise of scientific rationalism and biological science. Prerequisite: WRI 102.

HIS 240 Introduction to American History (3-0-3). Surveys the history of North America with a particular emphasis on the United States of America from the first European settlements to the present day. Covers interactions with Native Americans, slavery, the foundation of government, the Civil War and its aftermath, immigration, the emergence of the US as an industrial power, the US' role as an international power in the 20th century, social movements including those for civil and women's rights, the Cold War and its consequences, and the present situation of the US in the world. Prerequisite: WRI 102.

HIS 307 Modern Palestinian History (3-0-3). Examines Palestinian history before 1948 and brings the story forward to the breakthrough Oslo Accord of 1993 and its troubled aftermath. Focuses primarily on the origins and key aspects of the Arab-Israeli conflict. Prerequisites: WRI 102 and junior standing.

HIS 308 Ottoman History (3-0-3). Examines the social and economic history of the Ottoman Empire from its inception in 1924. Covers Ottoman expansion and governmental consolidation in the 16th and 17th centuries, including imperial foreign policy towards the Safavids and Europeans. Discusses the increasing political and economic influence of Europe during the 18th and 19th centuries in the context of the loss of Ottoman Europe and the Tanzimat reforms. Examines the rise of nationalist movements among many of the Empire's inhabitants and the impact of World War I. Prerequisite: any 200 level history course.

HIS 310 Modern Gulf History (3-0-3). Introduces the history of the Gulf Arab states in the 19th and 20th centuries. Examines the traditional economy of the Gulf before oil, traditional forms of rulership, the traditional role of merchants, British involvement in the region and the impact of oil in the first half of the course. Surveys the individual histories of the six Gulf Arab states in the second half of the course. Prerequisites: WRI 102 and junior standing.

HIS 322 The Global African Diaspora (3-0-3). Examines the experience of individuals and communities of African descent in the pre-modern and modern periods. Considers both forces and free migration, and diasporic experiences of both a servile and elite nature. Discusses diasporic experiences of power and oppression, systems of economic exploitation, political movements of resistance and emancipation, diasporic cultures and acculturation, race and racism. Prerequisite: any 200-level history course.

INS International Studies

INS 120 Global Problems (3-0-3). Introduces students to a range of global issues such as economic and political globalization, security and development. Explores different disciplinary and theoretical approaches to understanding global issues. Considers the impact of global problems at the local, national, regional and international levels and evaluates the response of both government and non-government organizations. Prerequisite/concurrent: WRI 101.

INS 140 Oil and Energy in the Contemporary World (3-0-3). Introduces key issues related to oil and other energy resources in the contemporary world. Examines the impact of energy resources on global problems such as economic development, conflict and security. Employs country-specific case studies to explain the importance of energy sources. Prerequisite: WRI 101.

INS 230 History, Culture and Society of the United Arab Emirates (3-0-3). Analyzes the historical, cultural and socio-political evolution of the United Arab Emirates (UAE). Examines key themes such as tribal foundation, British imperialism, nation-building, governance, economic diversification, identity and the interplay between tradition and modernity. Prerequisite: WRI 102.

INS 300 Research Design and Source Analysis (3-0-3). Introduces skills required to develop evidence- based arguments, such as research design, the ability to analyze primary and secondary source material, and use of both quantitative and qualitative evidence. Examines how concepts, models and theories can be utilized in research design. Explores the research process including development of a thesis statement, literature searches and review, as well as how to write effective introductions and conclusions. Prerequisites: Junior I standing, INS 120 and STA 202.

INS 301 Globalization (3-0-3). Examines the process of globalization, from its beginning in the 20th Century to the growing resistance to it in the 21st Century. Assesses the political and cultural impact of the globalization of economic systems, multinational organizations, technological, consumerism and worldwide communication systems. Prerequisite: ANT 205 or HIS 206 or HIS 217 or POL 201 or SOC 201.

INS 305 Politics and Ideology (3-0-3). Explores the fundamental relationship between politics and ideology and how ideologies change over time. Critically assesses different systems including liberalism, conservativism, anarchism, feminism, socialism and populism. Analyzes the ways ideologies drive political conflicts, influence social change and structure power relationships. Prerequisite: HIS 217 or PHI 208 or POL 201.

INS 307 International Security (3-0-3). Provides a broad introduction to contemporary security studies. Surveys some of the major concepts and theories in the area of international security and explores their application to a variety of case studies. Addresses issues such as inter-and intra-state conflict, non-state actors, asymmetrical warfare, nuclear proliferation, just war theory, techniques of diplomacy and cooperation. Prerequisite: POL 202.

INS 320 Human Rights in World Politics (3-0-3). Analyzes the global politics and history of the conception, protection and violation of human rights. Presents analytical frameworks, concepts, dominant theories and empirical methods used in the study of human rights. Examines how democracy and democratization, international law and institutions, the activities of powerful democracies, and global civil society each influence human rights around the world. Incorporates perspectives from the disciplines of political science, law, economics and history. Prerequisite: ANT 205 or HIS 217 or PHI 208 or POL 201 or SOC 201.

INS 322 Global Political Economy (3-0-3). Analyses the evolution of the global political economy from the launching of the Bretton Woods system to the present. Focuses on the interplay between politics

and economics as it impacts finance, globalization, international supply chains, development strategies, debt crises and the tension between protectionism and free trade. Prerequisites: ECO 202 and POL 202.

INS 325 Imperialism (3-0-3). Explores the origins, development and consequences of modern imperialism. Surveys the key patterns that have defined the growth and expansion of modern empires. Uses case studies of concrete historical situations to provide students with a detailed look at how empires grow and develop. Investigates the disparities between different patterns of decolonization and their respective legacies. Prerequisite: HIS 206 or HIS 217 or POL 201.

INS 330 Women and Politics (3-0-3). Examines the involvement of women in formal and informal politics from a global perspective. Addresses different forms of women's political activism and their impact. Focuses on developments and issues within individual countries through case studies. Prerequisite: ANT 205 or HIS 208 or POL 201 or WST 240 or WST 250.

INS 335 Marxism and Communism (3-0-3). Explores the history of communism from its origins in Marxist theory to the rise and fall of communist systems in Europe and around the world. Analyzes the history of selected communist states, movements and leaders. Prerequisite: HIS 206 or HIS 217 or POL 201 or PHI 208.

INS 340 Fascism and the Populist Radical Right in Europe (3-0-3). Examines the rise and fall of fascism and populist radical right parties in Europe. Explores what fascism is and why some European states became fascist. Analyzes the causes for the rise of new radical right parties in several European countries. Evaluates the difference and commonalities between populist radical right parties. Prerequisite: HIS 206 or HIS 210 or HIS 217 or POL 201.

INS 345 Islam in South Asia (3-0-3). Examines the history of Islam in South Asia since 700 CE. Explains the role of rulers, religious leaders, scholars and merchants in the spread of Islam in South Asia. Explores the transnational connections between Muslims in South Asia and the world. Examines the sociological and anthropological aspects of lived Islam in South Asia. Evaluates the political, economic, social and cultural transformation of Muslims in South Asia during colonial rule and after independence. Prerequisites: WRI 102, and HIS 205 or HIS 206 or HIS 217 or HIS 224 or ANT 205 or POL 201 or SOC 201.

INS 350 Moot Court (3-0-3). Introduces fundamentals of advocacy before international tribunals. Covers analysis of legal precedents, the development of legal briefs and the structure of oral arguments. Focuses on the skills required for analytical legal thinking. Repeatable up to 6 credit hours; the second registration will be used towards free electives. Prerequisites: BLW 301 or MDC 321 or PHI 201 or POL 201, and permission of instructor.

INS 360 Global Stratification and Inequality (3-0-3). Explores social stratification and inequality through a global lens. Critiques theories of social mobility, modernization and dependency. Discusses poverty, wealth, discrimination, inclusion, environmental constraints, resource distribution and exploitation. Prerequisite: ANT 205 or POL 201 or SOC 201.

INS 365 Disease and Disaster in History (3-0-3). Examines the impact of disease and disaster on human society in global historical contexts. Explores how individuals and societies have conceptualized disease and disaster constructs and how they have attempted to confront them. Prerequisite: ANT 205 or any 200 level history course.

INS 420 Social Theory (3-0-3). Explores the central texts and movements in modern and contemporary social theory. Examines various methodological and theoretical approaches within social theory from a critical and comparative perspective such as functionalism, structuralism, pragmatism and critical theory. Prerequisites: ENG 203 or ENG 204, and PHI 201 or PHI 207 or PHI 208 or POL 201 or SOC 201 or SOC 203, and junior standing.

INS 490 Senior Research Project (3-0-3). Focuses an independent capstone research project involving global issues or problems, in conjunction with an academic supervisor. Considers theoretical approaches in disciplines related to the Bachelor of Arts in International Studies degree program. Restricted to BAIS students. Prerequisites: INS 300 and senior standing.

INS 497 Internship in International Studies (0-0-0). Involves applied work in international studies with businesses, a government organization or private agencies. Admission to the class must be approved by the student's advisor. Graded as Pass/Fail. Prerequisites: junior II standing and approval of internship coordinator. Registration fee applies.

INS 499 Honors Thesis (3-0-3). Provides the opportunity to work closely with an individual faculty member to write an independent capstone research project involving global issues or problems that also considers theoretical approaches in disciplines related to the Bachelor of Arts in International Studies program. Prerequisites: CGPA of 3.5, INS 300 with a grade of A, senior standing and permission of the course instructor.

KOR Korean

KOR 100 Elementary Korean I (3-2-3). Covers essential elements of the Korean language at a basic level. Focuses on listening, speaking, reading and writing through communicative-based language use and activities. Suitable for those who have no prior knowledge of Korean.

MDC Media Communication

MDC 101 Digital Video Skills I (3-0-3). Introduces basic skills for creating video content for digital storytelling, such as videography, camera techniques, lighting and sound techniques and editing techniques. Restricted to BAMDC students and students in the FLM minor. Available to English Bridge Program students approved by the English Bridge Program coordinator.

MDC 102 Introduction to Media Literacy (3-0-3). Provides an introduction to the history of the media and media creation. Makes comparisons and explores relationships among visual arts, music and oral, written and technological media. Considers the role of art, myth, music and the forces that helped foster their development. Restricted to students with less than 60 credit hours. Not open to BAMDC students. Prerequisite/concurrent: WRI 102.

MDC 150 Introduction to Media Communication (3-0-3). Examines the nature of the various areas of the mass media, (i.e., television, radio, newspapers, magazines and interactive outlets) and how they impact the individual and society. Prerequisite/concurrent: WRI 102.

MDC 215 Understanding Propaganda (3-0-3). Examines the history of propaganda as a form of communication. Emphasizes its use in mass media and in current communication technology. Assesses its traditional elements and differentiates propaganda from persuasion. Traces the development of propaganda analysis methodologies. Introduces case studies and examples from a range of historical periods. Not open to BAMDC students. Prerequisite: ENG 203 or ENG 204.

MDC 217 Cyberculture and Identities (3-0-3). Examines the rapid growth of cyber-cultures and the formation of online identities. Explores the role that online platforms play as sites of cultural production and the range of meanings and identities produced within these platforms. Assesses the disruptive role that online cultures and identities may be playing in the ongoing existence of real-world

cultures and the formation of traditional identities. Not open to BAMDC students. Prerequisite: ENG 203 or ENG 204.

MDC 219 Global Media (3-0-3). Explores media and communication technologies, systems and practices in a global context using both historical and comparative perspectives. Analyzes the development, patterns and implications of cinematic, television, digital, and social media production and consumption on a global scale. Not open to BAMDC students. Prerequisite: ENG 203 or ENG 204.

MDC 222 Principles of Integrated Marketing Communications (3-0-3). Explores the essential issues shaping contemporary communication practice including direct-response advertising, media technology, communication planning, sales, public relations and event marketing. Prerequisites/concurrent: MDC 231 and MKT 201.

MDC 225 Media Theory (3-0-3). Provides a broad survey of legacy and emerging media and mass communication theories. Explores the everyday application of these theories in a variety of professional contexts including journalism, integrated marketing communications and social media. Prerequisite: MDC 150.

MDC 231 Writing for Media (3-0-3). Introduces the specific forms of writing for the mass media including print and broadcast news stories, the basics of digital storytelling and various forms of copy for integrated marketing communication. Prerequisite: MDC 150.

MDC 275 Principles of Journalism (3-0-3). Introduces basic principles of journalism as a profession and journalistic storytelling as it occurs in a variety of media formats. Discusses the history of journalism, legal and ethical concerns, and relevant media theory. Prerequisite/concurrent: MDC 231.

MDC 302 Digital Video Skills II (3-0-3). Explores a range of digital media platforms, production methods and performance techniques. Emphasizes the process of digital content creation—from conceptualization and scripting, through shooting and editing, culminating in the polished finalization of a media project. Prerequisites: MDC 101, MDC 150 and WRI 102.

MDC 307 Film Criticism (3-0-3). Introduces film genres, film noir, polyphonic narrative, comedy, romance and verities, among other topics, and critical approaches to analyze cinematic text. Covers exploration, discussion, research and writing about films as well as screenplay texts. Addresses theoretical approaches such as semiotics and structuralism, feminist, psychoanalytic, formalist and social criticism. Prerequisite: ENG 203 or ENG 204.

MDC 309 Social Media Content and Strategy (3-0-3). Focuses on social networking, micro-blogging and web applications employed in the fields of journalism, public relations, advertising and related media. Addresses ways in which social networking tools can be used to communicate and share information. Considers the legal and ethical implications associated with the use of social media for mass communication. Prerequisites: MDC 231 and junior standing. Lab/Tech fee rate A applies.

MDC 310 Infographics for Journalism (3-0-3). Introduces the principles of visual representation of information. Examines techniques of information graphics and digital visualizations, the use of charts, maps, diagrams and illustrations to tell stories. Explores ways to create compelling graphical displays of evidence and to critically evaluate examples from print media and the Internet. Prerequisites: MDC 222 or MDC 275, and MDC 231.

MDC 311 Media Research Methods and Data Analytics (3-0-3). Surveys qualitative and quantitative research methods in social sciences and the humanities with a focus on the mass media, journalism and integrated marketing communications. Covers the basics of generating and understanding social media analytics. Explores strategies to develop a research question, and design, conduct, implement and evaluate mass communication research projects using traditional and new data collection instruments. Prerequisites: MDC 225 and STA 202. Lab/Tech fee rate B applies.

MDC 320 Intercultural Communication (3-0-3). Provides an overview of world cultural literacy and shows how cultures influence communication. Enables the acquisition of knowledge about the interrelation of the humanities, music, mythology, art, theater, history and science. Prerequisite: ENG 203 or ENG 204.

MDC 321 Media Law and Ethics (3-0-3). Examines global legal issues affecting mass communication practices in advertising, journalism and public relations. Introduces professional ethical theory and decision making, and corporate social responsibility. Prerequisite: MDC 222 or MDC 275.

MDC 322 Case Studies in Integrated Marketing Communications (3-0-3). Explores and analyses case studies in integrated marketing communications. Emphasizes branding, database marketing, ethics, search engine optimization, paid search, B2B and B2C marketing, multichannel marketing, multicultural marketing, social media marketing and mobile marketing. Prerequisite: MDC 222.

MDC 323 Multiplatform Media Planning (3-0-3). Examines the convergence of media and integrated marketing communications planning and buying across multiple traditional media and digital, mobile and social media platforms. Emphasizes research, planning, budgeting, writing and execution of multiplatform plans with multiple objectives and strategies driven by market data, media databases and syndicated consumer research. Prerequisite: MDC 222.

MDC 326 Content Creation for Integrated Marketing Communications (3-0-3). Introduces essential skills in the production of content for integrated marketing communications, including written, audio, video, infographics and social media content. Stresses the integrated production of integrated marketing communications content within a digital storytelling format. Prerequisite: MDC 222.

MDC 329 Media and Society (3-0-3). Provides an overview of the effect of media on the formation of communities and societies through the mass media's formation of the audience and the audience's use of the mass media. Explores how media reflect and mold culture. Examines the role the media play in creating "the global village." Discusses the role that the Internet and social media platforms play in the formation of new communal and societal formations. Prerequisite: MDC 225.

MDC 360 Crisis and Conflict Communication (3-0-3). Focuses on media and communication centric approaches to crisis and conflict management. Combines theoretical concepts and best practices in communicating and covering crisis and conflict in different social and multicultural settings and situations. Explores various methods of planning for executing effective conflict and crisis communication strategies. Prerequisites: MDC 222 or MDC 275, and MDC 225.

MDC 366 Stardom and Celebrity Culture (3-0-3). Explores the emergence of celebrity studies with particular emphasis on popular culture, mass media, transnational flows and social media. Discusses how stars and celebrities function as social and cultural texts to embody collective anxieties and aspirations and to shape identities. Examines how contemporary celebrity culture engages and interacts with digital media. Prerequisite: ENG 203 or ENG 204.

MDC 367 Digital Marketing Communications (3-0-3). Analyses key concepts of digital marketing communication. Emphasizes the various strategies related to interactive integrated marketing communications. Evaluates communications issues related to search advertising, search engine optimization, display advertising, mobile marketing and e-commerce. Prerequisite: MDC 222.

MDC 371 News Writing (3-0-3). Builds expertise in newswriting and journalistic storytelling for text platforms. Gives concentrated practice in news gathering, note taking, interviewing and writing articles. Prerequisite: MDC 275.

MDC 374 Feature Writing (3-0-3). Examines various storytelling techniques in long-form journalism. Focuses on traditional and digital formats and skills specific to news features, personality profiles, issue-oriented articles and human-interest stories. Prerequisite: MDC 275.

MDC 376 Writing for Magazines (3-0-3). Introduces the various techniques in magazine writing. Focuses on different formats specific to magazine writing. Analyzes the elements of a magazine including readership, writing style and tone. Prerequisite: MDC 222 or MDC 275.

MDC 377 Photojournalism (3-0-3). Teaches the use of a digital single lens reflex camera to take photos for reportage and digital storytelling. Covers technical issues including lens settings, shutter speed, lighting, exposure compensation and composition. Includes assignments covering all major photojournalism digital storytelling formats. Prerequisite: MDC 222 or MDC 275. Lab/Tech fee rate B applies.

MDC 378 Literary Journalism (3-0-3). Provides an overview of the literary journalism genre. Explores the intersection of journalism and literature, the overlap of fiction and non-fiction, through pioneering works. Enhances reporting and information-gathering skills, and demonstrates how real stories can be told and adapted in an engaging way. Prerequisite: ENG 203 or ENG 204 or MDC 231.

MDC 381 Digital Storytelling for Journalists (3-0-3). Focuses on digital storytelling techniques in broadcast journalism. Covers scripting formats, voice-overs and interviewing in radio and television news. Addresses how storytelling is applied to radio and TV news packages. Prerequisite: MDC 275.

MDC 385 Women and Film (3-0-3). Examines issues pertaining to women and film such as, but not limited to, history of women's cinema, prominent women directors and genres, and social functions of film as it pertains to the role of women in society. Prerequisite: ENG 203 or ENG 204.

MDC 424 Social Media Strategies (3-0-3). Examines existing social media platforms and their use in effective social media integrated marketing communications campaigns. Analyzes key attributes, best practices and audience response measurements for each social media platform. Requires the design and development of a social media plan in response to a client brief. Prerequisites: MDC 323 and MDC 326.

MDC 474 Field News Reporting (3-0-3). Develops field newsgathering, interviewing and reporting skills for television, online and print. Prerequisites: MDC 371 and MDC 381.

MDC 479 Multimedia Journalism (3-0-3). Examines multimedia storytelling in journalism. Emphasizes content production in multimedia formats. Focuses on the development of collaborative journalism skills in the production of a multimedia journalism project using text, audio, video, images and motion graphic elements. Prerequisite: MDC 474.

MDC 480 Critical Media Analysis (3-0-3). Examines the uses of critical theory and specific methodological approaches in the study of mass media. Considers sources of influence in society and the implications of media production and consumption. Prerequisite: MDC 311.

MDC 485 Integrated Marketing Communication Campaigns (3-0-3). Examines all aspects of integrated marketing communications (IMC) campaigns. Covers research, strategy planning, creative planning, media planning and pitching. Requires collaborative work focused on developing and executing an IMC campaign. Prerequisites: MDC 322 and MDC 424.

MDC 497 Media Communication Internship (0-0-0). Provides a minimum of five weeks (normally 200 hours) of training in an agency, company, media organization, government or non-governmental organization, relevant to either the integrated marketing communication or journalism concentration. Graded as Pass/Fail. Prerequisites: MDC 323 and MDC 326, or MDC 371 and MDC 381. Registration fee applies.

MTH Mathematics

MTH 001 Preparatory Mathematics for Engineers (3-2-4). Preparatory for MTH 103 Calculus I. Emphasizes the basic skills and techniques of algebra and trigonometry. Explores real and complex numbers, basic arithmetic, equations and inequalities, study of functions, polynomial and rational functions, exponential and logarithmic function, trigonometric functions and introduction to limits. Students are allowed to repeat a preparatory course only once up to sophomore I standing (less than 45 credit hours). Available to English Bridge Program students approved by the English Bridge Program coordinator. Credit hours will not count in the earned hours, and grades earned in this course will not count in the grade point average.

MTH 002 Preparatory Business Mathematics (3-0-3). Preparatory for MTH 102. Covers integers and variable expression, fractions, decimals and real numbers, basic algebraic operations, equations and inequalities, functions and graphs, polynomial, rational, exponential and logarithmic functions with emphasis on business applications. Students are allowed to repeat a preparatory course only once up to sophomore I standing (less than 45 credit hours). Available to English Bridge Program students approved by the English Bridge Program coordinator. Credit hours will not count in the earned hours, and grades earned in this course will not count in the grade point average.

MTH 003 Preparatory Mathematics for Architects (3-0-3). Preparatory for MTH 111 Mathematics for Architects. Covers basic ideas and concepts of arithmetic, algebra, geometry and trigonometry and calculus applications needed for architecture and design. Students are allowed to repeat a preparatory course only once up to sophomore I standing (less than 45 credit hours). Available to English Bridge Program students approved by the English Bridge Program coordinator. Credit hours will not count in the earned hours, and grades earned in this course will not count in the grade point average.

MTH 100 Fundamentals of Logic and Geometry (3-0-3). Covers logic and set theory, geometry in the plane and space, and basic algebra. Includes the following topics: fundamentals of inductive and deductive reasoning; propositional and first order logic; sets, relations and functions; Euclidean and analytical geometries in two and three dimensions; and linear transformations and quadratic forms. Not open to BArch, BID, engineering, science and SBA students. Available to English Bridge Program students approved by the English Bridge Program coordinator.

MTH 102 Calculus for Business (3-0-3). Covers the derivative, rules for differentiation and their applications, definite and indefinite integrals, methods of integration and applications, functions of more than one variable, partial differentiation and applications to optimization. Emphasizes techniques and applications. Not open to science or engineering students. Available to English Bridge Program students approved by the English Bridge Program coordinator. No credit will be given for more than one of MTH 102, MTH 103 or MTH 111. Prerequisite: MTH 002 or any AUS math placement test.

MTH 103 Calculus I (3-1-3). Covers inverse functions, limits of functions; differentiation of algebraic, logarithmic, exponential, trigonometric and inverse

trigonometric functions; applications of derivatives including maxima and minima, related rates, approximations, theory of integration with applications including areas and volumes. Not open to BSDM, BSMD and BSVC students. Available to English Bridge Program students approved by the English Bridge Program coordinator. No credit will be given for more than one of MTH 102, MTH 103 or MTH 111. Prerequisite: MTH 001 or Engineering Math Placement Test.

MTH 104 Calculus II (3-1-3). Covers techniques of integration, hyperbolic functions, improper integrals, arc length, surface area, infinite series, power series, convergence tests, parameterized curves, polar coordinates, integration in polar coordinates and complex numbers. Prerequisite: MTH 103.

MTH 111 Mathematics for Architects (3-0-3). Introduces the topics of geometry and calculus needed for architecture. Reviews trigonometry, areas and volumes of elementary geometric figures, and the analytic geometry of lines, planes and vectors in two and three dimensions. Covers differential and integral calculus, including applications on optimization problems, and areas and volumes by integration. Restricted to CAAD students. Available to English Bridge Program students approved by the English Bridge Program coordinator. No credit will be given for more than one of MTH 102, MTH 103 or MTH 111. Prerequisite: MTH 001 or MTH 003 or Architecture Math Placement Test or Engineering Math Placement Test.

MTH 113 Introduction to Arab/Islamic History of Mathematics (3-0-3). Explores the contributions of Arab/Muslim scholars to the main classical themes of mathematics. Covers the historical development of algebra, arithmetic, combinatorics, number theory, geometry and trigonometry. Restricted to students with less than 60 credit hours. Prerequisite/concurrent: WRI 101.

MTH 203 Calculus III (3-1-3). Covers calculus of functions of several variables, vectors and analytic geometry of three-dimensional space, partial derivatives, gradients, directional derivatives, maxima and minima, multiple integrals, line and surface integrals, Green's theorem, divergence theorem and Stokes' theorem. Includes a computer laboratory component. Prerequisite: MTH 104.

MTH 205 Differential Equations (3-0-3). Covers mathematical formulation of ordinary differential equations, methods of solution and applications of first order and second order differential equations, power series solutions, solutions by Laplace transforms and solutions of first order linear systems. Prerequisite: MTH 104.

MTH 213 Discrete Mathematics (3-0-3). (Equivalent to CMP 213). Covers propositional and predicate calculus, sets, major classes of functions and related algorithms, asymptotic analysis of functions, principle of mathematical induction, proof techniques, recursive definitions, counting, relations, graphs and trees. Prerequisite: MTH 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. Prerequisite: MTH 104.

MTH 225 Differential Equations and Linear Algebra (3-1-3). Covers first order differential equations, linear systems and matrices, vector spaces, higher order differential equations, eigenvalues and eigenvectors, linear systems of differential equations and matrix exponential methods. Prerequisite: MTH 104.

MTH 243 Introduction to Mathematical Programming (0-2-1). Introduces the idea of algorithms and procedures. Expose students to basic logic, conditional statements and iterative commands used in writing computer algebra system codes to solve selected mathematical problems. Prerequisite: sophomore standing.

MTH 304 Mathematics of Finance (3-0-3). Covers interest measurement, pricing of annuities (due, immediate, increasing, decreasing, geometric, with payments frequency smaller than the compounding period), amortization schedule and sinking fund method (with different remunerative and reproductive rate), yield rate, bonds (pricing, book value, market value, flat price, bound amortization schedule, callable bounds) and term structure of interest rates. Prerequisite: MTH 102 or MTH 103 or MTH 111.

MTH 305 Life Contingencies (3-0-3). Provides a basic review of interest theory, life tables and population problems, life annuities (due, immediate, temporary, deferred, increasing, decreasing) with basic pension application, life insurance (pure endowment, term insurance, deferred insurance, n-year endowment insurance, varying), net single premium, annual premium and statistical considerations. Prerequisites: MTH 102 or MTH 103 or MTH 111, and STA 201 or STA 202 or NGN 211 or QBA 201.

MTH 307 Theory of Risk (3-0-3). Covers probabilistic notions related to risk theory, individual and collective risk models for a short term, compound processes and approximations, collective risk for an extended period, applications to insurance, stop-loss insurance reinsurance, dividends in group insurance, reinsurance and probability of ruin, surplus and loss process, and ruin theory. Prerequisites: MTH 102 or MTH 103 or MTH 111, and STA 201 or STA 202 or NGN 211 or QBA 201.

MTH 308 Mathematics of Derivative Securities (3-0-3). Introduces options and methodologies for pricing, including analytic methods, tree models and Monte Carlo simulations. Describes pricing strategies for European, American and exotic options. Covers the Black-Scholes model and explores interest rate models through the Black-Derman-Toy binomial model for the valuation of bonds and interest rate options. Prerequisites: MTH 102 or MTH 103 or MTH 111, and STA 202 or QBA 201 or STA 201 or NGN211.

MTH 311 Intermediate Analysis (3-0-3). Covers sets and the real number system, functions, mathematical induction, sequences and series, limits and continuity, uniform continuity, basic topology of the real number system, differentiation, Riemann-Stieltjes integration, sequences and series of functions and uniform convergence. Prerequisites: MTH 203, MTH 213 and MTH 221.

MTH 312 Advanced Calculus (3-0-3). Focuses on the study of vector calculus including vector fields, the theory of integration of functions of two and three variables, divergence and Stokes' theorems, the inverse and implicit function theorems. Addresses the basic topology of Euclidean space, continuity and differentiation of vector valued functions, linear operators on Euclidean space, and curves and surfaces. Prerequisite: MTH 203.

MTH 313 Number Theory and its Applications (3-0-3). Covers the Euclidean algorithm, linear congruencies and the Chinese Remainder Theorem, Fermat's Little Theorem, quadratic residues and quadratic reciprocity, Pythagorean triples and sums of squares. Includes applications in communication, public key cryptography, computer arithmetic, random number generators and music. Prerequisite: MTH 203 or MTH 213 or MTH 221.

MTH 320 Abstract Algebra I (3-0-3). Covers semi-groups, monoids, groups, permutation groups, cyclic groups, Lagrange's Theorem, subgroups, normal subgroups, quotient groups, (external) direct product of groups, homomorphism and isomorphism theorems, Cayley's Theorem, and introduction to rings and fields. Prerequisite: MTH 221.

MTH 325 Coding Theory (3-0-3). Introduces coding theory, linear codes, Hamming codes, Hamming distances, Hamming weights, probability, Shannon's theorem, dual codes, weight distribution of linear codes, cyclic codes, BCH codes, convolution codes, encoding and decoding. Prerequisite/concurrent: MTH 221.

MTH 343 Numerical Analysis I (3-0-3). Introduces the fundamentals of numerical algorithms and their application for scientific computing. Includes topics such as error analysis, root finding, interpolation, function approximations, integration and differentiation, initial value problems, optimization techniques and linear programming. Prerequisites: CHE 240 or CMP 120 or MCE 226L or MTH 243, and MTH 221.

MTH 350 Introduction to Probability (3-0-3). Introduces probability spaces, axioms of probability, combinatorial counting techniques for discrete probability spaces, conditional probability and independent events; random variables, univariate and multivariate probability density functions expectation; variance and higher moments and moment generating functions. Prerequisite: STA 201 or NGN 211 or QBA 201; prerequisite/concurrent MTH 203.

MTH 351 Methods of Applied Mathematics (3-0-3). Introduces a broad range of mathematical tools used to solve scientific and engineering problems. Topics include Fourier series, Fourier transform and its applications in solving integral and differential equations, calculus of variation, and special functions. Covers applied physical problems arising in science and engineering. Prerequisite: MTH 205 or MTH 225.

MTH 382 Linear Programming and Optimization (3-0-3). Introduces optimization theory and methods, nonlinear unconstrained optimization, linear programming, sensitivity analysis, various algorithms and search methods for optimization and their analysis. Provides examples from various disciplines. Prerequisites: MTH 221, and MTH 243 or CHE 240 or CMP 120 or MCE 226L.

MTH 412 Complex Variables (3-0-3). Studies functions of a complex variable, algebra of complex numbers, elementary functions with their mapping properties, analytic functions, power series, integration, Cauchy's Theorem, Laurent series and residue calculus, elementary conformal mappings and boundary value problem. Prerequisite: MTH 203.

MTH 418 Graph Theory (3-0-3). Covers graphs and sub graphs, connected and disconnected graphs, matrices, trees and girth, planar and nonplanar graphs, graph embeddings, connectivity and edge connectivity, Hamiltonian graphs, matching, factorization and coverings, networks and applications to science and engineering. Prerequisite: MTH 213 or CMP 213.

MTH 431 Dynamical Systems (3-0-3). Examines the second order differential equations in phase plane, linear systems and exponential operators, canonical forms, stability of equilibria. Lyapunov functions, autonomous systems, the existence of periodic solutions and applications to various fields. Prerequisites: MTH 205 and MTH 221, or MTH 225.

MTH 432 Partial Differential Equations (3-0-3). Covers mathematical formulations and solutions of partial differential equations of physical problems, includes the wave, heat and Laplace's equation. The mathematical tools include Fourier transform, Fourier series and Laplace transform. Prerequisite: MTH 205 or MTH 225.

MTH 490 Senior Project (0-6-3). Provides individualized study in which student conducts research on a topic not specifically covered in other courses under the supervision of a faculty member with expertise in that area. Prerequisites: senior standing and consent of instructor.

MUS Music

MUS 100 Music Fundamentals (3-0-3). Covers the fundamentals of music notation. Addresses the development of written and listening skills in music theory. Explores these skills through piano and voice demonstrations.

MUS 101 Class Voice and Music Notation (2-1-3). Focuses on sight-singing and written skills in the framework of Western music. Addresses the relationship between theory and the practical understanding of musical construction. Covers notation, harmonic and melodic analysis and ear training while using the human voice.

MUS 200 Introduction to European Classical Music (3-0-3). Introduces the history and development of music within the European Classical tradition and its impact on culture worldwide. Examines the chronological development and the factors involved in the evolution of musical thought and experience. Prerequisite: WRI 102.

MUS 252 Applied Lessons (0-3-1). Provides individual lessons with special focus on one instrument. Explores basic pedagogy of selected instrument. Studies repertoire to establish a foundation of basic techniques. Repeatable up to 3 credit hours. Prerequisite: audition with instructor.

MUS 255 Music Ensemble (0-3-1). Provides group ensemble activities. Explores basics of music theory and direct application in a public performance. Repeatable up to 3 credit hours. Prerequisite: audition with instructor.

MUS 272 Class Oud I (2-1-3). Examines oud technique in a group setting. Addresses music notation and sight-reading, picking, arpeggiation, intervals, and rhythmic and modal expressions using the maqam. Explores a variety of short instrumental pieces with progressive difficulty. Prerequisite: MUS 100 or MUS 101 or audition with instructor.

MUS 273 Class Piano I (2-1-3). Studies rudimentary piano technique and repertoire in a piano studio environment. Applies music theory fundamentals and elementary technical exercises for sightreading Western classical musical notation. Explores playing positions, fingering, note identification, and reading elementary level rhythms on a variety of simple solo and ensemble piano pieces. Prerequisite: MUS 100 or MUS 101 or audition with instructor.

MUS 280 Class Percussion (2-1-3). Examines basic percussion techniques in a classroom/percussion studio environment. Introduces percussion instruments, including unpitched percussion (different types of drums) and pitched percussion (keyboard percussion: marimba, xylophone, or vibraphone). Covers rhythmic notation, meter, dynamics, key signatures, and rests, among others. Applies percussion techniques to a variety of styles and genres from around the world. Prerequisite: MUS 100 or MUS 101 or audition with instructor.

MUS 290 Class Qanun (2-1-3). Explores Qanun technique in a group setting. Covers music notation, basic scales, finger plucking, tremolo dexterity, intervals, and key switches, as well as rhythmic and modal expressions using the maqam system. Engages with various short instrumental pieces of increasing complexity, emphasizing the unique timbre and microtonal capabilities of the Qanun. Prerequisite: MUS 100 or MUS 101 or audition with instructor.

MUS 301 World Music (3-0-3). Explores music as a global phenomenon and its connection to culture and indigenous customs. Highlights key figures, instruments, rituals, and theories from around the world. Examines the ethical and social roles of music. Analyzes anthropological and sociological perspectives on diverse musical traditions. Incorporates independent research and engagement with global music scenes. Prerequisite: ENG 203 or ENG 204.

MUS 302 Women and the Performing Arts (3-0-3). Examines women's musical and theatrical contributions in a variety of capacities and traditions. Researches the history of women in the performing arts as composers, performers (on stage and film), patrons, and symbols in the marketing and consumption of the arts. Prerequisite: ENG 203 or ENG 204.

MUS 303 American Pop (3-0-3). Provides an overview of genres of popular music such as jazz, rock, pop and hip hop and examines the work of the most eminent

composers of each genre. Examines popular music within social, political and cultural contexts. Prerequisite: ENG 203 or ENG 204.

MUS 304 Music of the Arab World (3-0-3). Covers the history and development of Arabic music in the Middle East and North Africa. Explores the cultural and sociological musical influences from the surrounding regions including Central Asia and Turkey. Discusses topics in musicology as they relate to both historic and contemporary scholarly perspectives. Provides an overview of research methods in ethnomusicology through group project. Prerequisite: ENG 203 or ENG 204.

MUS 352 Advanced Applied Lessons (0-3-1). Studies directly under supervision of a professor in individual lessons with special focus on one instrument at a higher level of expertise and greater degree of difficulty. Repeatable up to 3 credit hours. Prerequisite: audition with instructor.

MUS 355 Advanced Music Ensemble (0-3-1). Rehearses ensemble activities in advanced level groups. Explores complex music theory and direct application in a public performance. Repeatable up to 3 credit hours. Prerequisite: audition with instructor.

MUS 356 Musical Theatre and Performance (2-1-3). Develops musical theatre skills through analysis, rehearsal and performance of musical theatre repertory. Employs rehearsal and performance techniques used in professional production. Prerequisite: audition with professor.

MUS 373 Class Piano II (2-1-3). Studies intermediate piano technique and repertoire in a piano studio environment. Applies music theory fundamentals and elementary technical exercises for sightreading Western classical musical notation. Explores playing positions, fingering, note identification and reading elementary level rhythms on a variety of simple solo and ensemble piano pieces. Examines historical contributions to the development of music by various composers. Prerequisite: MUS 273 or audition with instructor.

PHI Philosophy

PHI 201 Introduction to Philosophy (3-0-3). Introduces basic questions, ideas and methods of philosophy. Discusses philosophers selected from various historical periods. Encourages and teaches the development of a philosophical mind. Prerequisite: WRI 102.

PHI 202 Introduction to Islamic Philosophy (3-0-3). Surveys the major philosophers in Islam, focusing on religious doctrines interacting with philosophical traditions. Discusses the relationship between Islamic and Western philosophy. Prerequisite: WRI 102.

PHI 206 Ethics and Information Technology (3-0-3). Examines the ethical questions raised by our life with information technology. Develops a background for ethical judgment, and awareness of one's own viewpoint. Both historical sources and contemporary case studies may be used. Prerequisite: WRI 102.

PHI 207 Existentialism (3-0-3). Examines the development of the various schools of Existentialist thought through an examination of its crucial texts in 19th century and 20th century thought. Explores central questions to existentialist thought such as: What does it mean to say that existence precedes essence? What is the nature of human freedom? What does it mean to be an authentic human being? Prerequisite: WRI 102.

PHI 208 Modern Philosophy (3-0-3). Introduces the basic ideas and institutions that define "modernity" within Western culture. Traces modernity as a cultural and philosophic paradigm from the Protestant Reformation until Heidegger and the postmodern turn. Focuses on the development of the modern subject as key to understanding the ideas and institutions of the Enlightenment. Prerequisite: WRI 102.

PHI 303 Political Philosophy (3-0-3). Introduces the fundamental questions of how a polity should be structured. Emphasizes the justifications for fundamental decisions in shaping political orders. Both historical and contemporary readings apply. Prerequisite: ENG 203 or ENG 204.

PHI 304 Themes in Western Thought (3-0-3). Explores selected themes from the history of Western thought with relevance in the present. Makes clear how ideas shape culture and inform life far into the future. Emphasizes the relationship between Western thought and the students' lives. Prerequisite: ENG 203 or ENG 204.

PHI 309 Ethics and the Environment (3-0-3). Explores the philosophical dimensions of how we are related to the environment. Studies why, or whether, life on Earth should be respected. Reflects on the philosophy of nature. Prerequisite: ENG 203 or ENG 204.

PHY Physics

PHY 001 Preparatory Physics (3-0-3). Develops problem-solving skills using algebra and trigonometry through the study of elements of kinematics (motion in one and two dimensions) and dynamics (Newton's laws, momentum, work and energy). Required for science and engineering students with an insufficient background in physics. Students are allowed to repeat a preparatory course only once up to sophomore I standing (less than 45 credit hours). Credit hours will not count in the earned hours, and grades earned in this course will not count in the grade point average.

PHY 100 Conceptual Physics (3-0-3). Gives non-science and non-engineering majors an understanding of the basic concepts of physics without complex mathematics. Emphasizes conceptual understanding of physical phenomena, firmly grounded in scientific methods. Covers simple elements of mechanics, waves and light, electricity and magnetism, atoms and nuclei. Not open to engineering and science students.

PHY 101 General Physics I (3-0-3). Introduces the fundamental principles, laws and concepts of mechanics to students of science and engineering. Covers mechanics (kinematics in one and two dimensions; Newton's laws of motion with applications; work and energy; conservation of energy and momentum; general rotation, including torque and angular momentum; static equilibrium) as well as some introductory material on and mechanical waves (simple harmonic motion). Prerequisite: PHY 001 or Physics Placement Test; prerequisites/concurrent: MTH 103 and PHY 101L.

PHY 101L General Physics Laboratory I (0-3-1). Provides the opportunity to perform experiments that demonstrate the principles and laws of mechanics. Includes experiments on kinematics; Newton's laws of motion with friction and other forces; work and energy; conservation of momentum; rigid body rotational inertia; torque; static equilibrium; and simple harmonic motion. Prerequisite/concurrent: PHY 101. Lab/Tech Fee rate A applies.

PHY 102 General Physics II (3-0-3). Builds upon General Physics I. Covers electricity (electric fields, including Gauss's law; electric potential; capacitors and resistors; DC circuits), magnetism (sources of the magnetic field, including Ampere's law; induction, including Faraday's law and Lenz's law), and alternating current circuits, as well as introductory material on electromagnetic waves. Prerequisites: PHY 101 and PHY 101L; prerequisite/concurrent: PHY 102L.

PHY 102L General Physics Laboratory II (0-3-1). Focusses on experiments that illustrate the basic principles of electricity and magnetism. Covers the charge of the electron, electric field mapping, Ohm's law, Wheatstone bridge, power transfer, Kirchhoff's rules, resistor-capacitor circuit,

force on a current-carrying wire in a magnetic field, magnetic field due to a circular loop, and the charge-to-mass ratio of the electron. Prerequisite/concurrent: PHY 102. Lab/Tech Fee rate A applies.

PHY 103 Astronomy (3-0-3). Presents a broad view of descriptive astronomy without complex mathematics. Introduces and familiarizes the students with basic astronomical facts and phenomena that one can observe, study and explain using scientific methods. Consists of studying the night sky, using celestial coordinates, understanding the motion of heavenly bodies, familiarizing oneself with the tools of astronomers, reviewing the solar system, understanding what stars are and how they evolve, and getting a general overview of galaxies and the universe. Not open to engineering and science students.

PHY 104 Physics for Architects (3-0-3). Teaches a selected set of algebra-based topics in physics to students of architecture. Topics covered Include: elements of mechanics (kinematics and dynamics); optics (geometrical as well as interference); sound (including general principles of acoustics, such as the propagation, transmission, attenuation and reverberation of sound); heat and energy. Not open to engineering and science students and to students who have completed PHY 101.
Prerequisite/concurrent: MTH 103 or MTH 111.

PHY 106 General Physics III (3-0-3). Covers fluid mechanics (pressure, buoyant force, the continuity equation and Bernoulli's equation), basics of oscillatory motion (simple harmonic motion and damped and forced oscillations), mechanical waves (waves on a string, sound waves, the Doppler effect, standing waves, resonance and beats), thermodynamics (temperature, heat and heat engines, the laws of thermodynamics and the kinetic theory of gases), and light and optics (laws of geometric optics, image formation and basics of interference). Prerequisites: PHY 101 and PHY 101L.

PHY 113 Introduction to Astrophysics (3-0-3). Introduces the fundamental concepts, principles and laws of astrophysics. Applies mathematical tools and physical concepts to solve basic astrophysical problems of different kinds and topics, including planetary orbits, observations, energy production of the sun and evolution of stars. Provides a technical overview of telescopes and other astronomical instruments and observational/detection techniques from both the ground and space.
Prerequisites/concurrent: PHY 101 and MTH 103.

PHY 200L Intermediate Physics Laboratory (0-3-1). Covers intermediate-level experiments focused on fluid mechanics, waves, thermodynamics, optics and photoelectric effect. Addresses Frank-Hertz and Young's double-site experiments. Prerequisites: PHY 106 and PHY 201. Lab/Tech fee rate A applies.

PHY 201 Modern Physics (3-0-3). Covers special relativity, introductory quantum mechanics, nuclear physics, elements of solid state and semi-conductor physics. Addresses the fundamental principles of quantum mechanics, including de Broglie's wave assumption, Heisenberg's uncertainty principle, quantization and wave function. Prerequisites: PHY 102 and PHY 102L.

PHY 203 Introduction to Electronics (2-3-3). Provides a basic understanding of the diffusion process and the operating principles of semiconductor devices in modern electronics. Introduces analog and digital electronics. Covers the fundamentals and underlying physics of DC circuits, alternating current circuits, filters, diodes, transistors, amplifiers, digital logic concepts and their applications. Prerequisite: PHY 102. Lab/Tech fee rate A applies.

PHY 301 Energy Sources (3-0-3). Covers energy from a physics perspective. Examines present and future alternative energy sources, including hydroelectric, nuclear, solar, geothermal and tidal energy. Investigates the problems caused by each energy source and the issue of sustainability. Prerequisites: PHY 102 and PHY 102L.

PHY 310 Mathematical Methods in Physics (3-0-3). Introduces mathematical techniques and methods employed in classical mechanics, electromagnetism, quantum mechanics and fluid mechanics with particular emphasis on applications to physical problems. Explores applications of Fourier and Laplace transforms. Focuses on the use of computer software to solve physics problems. Prerequisites: PHY 102, and MTH 205 or MTH 225.

PHY 313 Satellites and Space Physics (3-0-3). Covers contemporary developments, discoveries and trends in space science and technology. Emphasizes the relevance and application of various physical principles and laws (mechanics for orbits and electromagnetism for communication, signal detection and processing, energetics, and image processing for remote sensing, etc.) Focuses on practical applications and tools related to satellites and space physics. Prerequisites: PHY 102 and PHY 102L.

PHY 320 Classical Mechanics (3-0-3). Covers topics in Newtonian mechanics including kinematics and dynamics in one, two and three dimensions. Addresses analytical mechanics including generalized coordinates, Lagrange's and Hamilton's equations, and theory of small oscillations. Prerequisites: PHY 101, and MTH 205 or MTH 225.

PHY 330 Electromagnetic Theory (3-0-3). Covers the principles and applications of electromagnetic theory and optics. Emphasizes charges and currents, electric and magnetic fields; dielectric, conducting and magnetic media; and relativity, Maxwell equations, wave propagation in media, radiation and scattering. Prerequisites: PHY 102 and MTH 203.

PHY 332 Properties of Matter (3-0-3). Provides a thorough and technical overview of the physical properties of matter. Emphasizes the practical applications of modern physics theories. Examines the behavior of matter at the atomic and molecular levels. Covers the states and structural properties of matter, classes of materials, atomic and molecular bonding, X-ray diffraction, experimental diffraction methods, imperfections in solids, atom movements and diffusion. Addresses various phase transitions of substances (solid, liquid, gas) as a result of changes in temperature and pressure. Prerequisite: PHY 201.

PHY 350 Quantum Mechanics (3-0-3). Covers wave mechanics, Hilbert space, angular momentum and spin, symmetries and identical particles. Surveys techniques for solving the Schrodinger equation exactly and by approximation methods. Explores applications of quantum mechanics to a number of quantum processes in atomic, molecular, nuclear and condensed matter physics.
Prerequisite: PHY 201;
prerequisite/concurrent: PHY 310.

PHY 360 Fundamentals of Nanophysics (3-0-3). Explores various phenomena and techniques in nanophysics and technology. Covers examples of nanoscale systems, systematics in miniaturization from the millimeter to the nanometer scale, limits to miniaturization, quantum concepts, physics-based experimental approaches to nanofabrication and nanotechnology. Surveys examples of nanosystems from nature and from contemporary industrial products. Discusses current and future applications in engineering, physics, chemistry, biology and materials science. Prerequisites: PHY 102, and MTH 205 or MTH 221 or MTH 225.

PHY 397 Internship in Physics (0-0-0). Requires a minimum of five weeks of approved applied work in physics-related organization, laboratory, agency or firm. Graded as Pass/Fail. Prerequisites: junior II standing and approval of internship coordinator. Registration fee applies.

PHY 400L Contemporary Experimental Physics (0-6-2). Provides an overview of advanced experimental techniques and analysis. Focuses on data acquisition, data reduction, error analysis and technical writing skills. Addresses techniques in

atomic, molecular and solid-state spectroscopy. Covers applications of VIS-NIR light, X-rays, and gamma rays in classical and modern physics experiments. Prerequisites: PHY 201 and PHY 203. Lab/Tech fee rate A applies.

PHY 460 Thermodynamics and Statistical Physics (3-0-3). Examines the statistical basis of thermodynamics. Covers energy and the first law of thermodynamics; states, entropy and the second law of thermodynamics; thermodynamics relations; statistical methods for microscopic systems; the partition function; and quantum statistics. Explores applications of statistical physics to various physical systems and phenomena. Prerequisites: PHY 106, PHY 201 and PHY 310.

PHY 491 Senior Research Project I (0-6-3). Requires faculty-supervised individual or group projects on specific topics of current interest in physics. Focuses on structuring a research project and requires oral presentations and written reports. Prerequisites: senior standing and PHY 201.

PHY 492 Senior Research Project II (0-6-3). Requires faculty-supervised individual or group projects on specific topics of current interest in physics. Focuses on structuring a research project and requires oral presentations and written reports. Prerequisites: senior standing and PHY 201.

POL Political Science

POL 201 Introduction to Political Studies (3-0-3). Introduces the science of politics and the study of the structure of government. Examines the institutions and theories underpinning modern nation-states, primarily focusing on the subfields of political theory and comparative politics. Prerequisite: WRI 102.

POL 202 Introduction to International Relations (3-0-3). Introduces the main stages of the evolution of international relations as a discipline since 1945, which can be seen as an ongoing debate about the explanatory value of one particular theory (Realism). Covers theories of international relations as well as a theory-based introduction to foreign policy analysis. Analyzes the different schools of international relations theory as well as their respective critiques. Prerequisite: POL 201.

POL 300 Comparative Politics (3-0-3). Introduces key themes, theories and debates in comparative politics. Provides an overview of the historical, political, economic and ideational dynamics that have shaped the states and societies of the developed and developing worlds. Prerequisite: POL 201.

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. Considers selected organizations such as the United Nations, North Atlantic Treaty Organization, International Monetary Fund and the World Trade Organization. Prerequisite: POL 202.

POL 305 Public International Law (3-0-3). Covers international law, including the Law of the Seas, the Geneva Convention, the Charter of the United Nations, crimes against humanity, environmental law, international and regional treaties and trade agreements. Focuses on legal institutions such as the International Court of Justice in The Hague. Prerequisite: POL 202.

POL 308 American Foreign Policy (3-0-3). Examines the evolution and impact of American foreign policy. Studies the major issues in past and current US foreign policy, with a focus on the historic debates that have shaped American international conduct and their relevance to today's politics. Studies the processes of American foreign policy and examines the various factors in both the domestic and international contexts that have shaped and currently shape foreign policy initiatives. Gives particular attention to the sources of basic American policies during the past half century, along with a focus on the various theoretical approaches to explanation. Examines the pressing issues of today, particularly those pertaining to the Middle East and the West. Prerequisites: POL 201 and POL 202.

POL 312 Understanding Terrorism: A Critical Analysis (3-0-3). Critically analyzes the study and conceptional evolution of terrorism. Examines the historical trajectory of terrorism with a focus on developments since the beginning of the 20th century. Investigates causes and consequences of terrorism, counter-terrorism strategies, terrorist tactics, and the role of the global media. Compares types of terrorism, including left-wing terrorism of the 1960s, right-wing anti-communist terrorism, ethnonationalist terrorism and religious terrorism. Examines the theoretical causes of terrorism by investigating and comparing cases across multiple world regions. Prerequisite: POL 202.

POL 409 Politics and Civil Society in the Middle East (3-0-3). Analyzes selected aspects of recent Middle Eastern politics including changes in its political culture, key institutions, political economy, religion, gender relations and civil activism. Examines recent theoretical developments in the literature and assesses empirical analyses of these topics. Prerequisite: INS 300.

PSY Psychology

PSY 101 Introduction to Psychology (3-0-3). Introduces psychology as a scientific discipline with evidence-based methods for exploring human behavior and experience. Covers a variety of topics across various fields in psychology, such as research methods, biopsychology, consciousness, sensation and perception, genetics, development, learning, memory, intelligence, personality, mental illness, therapy and social psychology.

PSY 102 Social Psychology (3-0-3). Introduces the scientific study of social behavior and social influences on behavior. Focuses on the study of how our behaviors, thoughts and emotions are affected by the real or imagined presence of other people. Presents theories and research on such topics as attitude change and persuasion, stereotypes and prejudice, conformity and obedience to authority, altruism, conflict, interpersonal attraction and friendship. Prerequisite/concurrent: WRI 101.

PSY 103 Psychology of Everyday Life (3-0-3). Introduces psychology as a scientific discipline for helping people understand themselves and the world around them. Explores various topics in psychology with an emphasis on applying psychological principles to aspects of everyday life. Not open to BAPSY students.

PSY 250 Research Methods I (3-0-3). Explores various psychological research methods that have transformed our understanding of human thought and behavior. Contrasts the most common methods and explores their strengths and limitations. Provides skills in seeking sources of scientific information, generating study materials, understanding statistical procedures and presenting research findings. Prerequisite: PSY 101.

PSY 301 Abnormal Psychology (3-0-3). Covers different theoretical approaches and empirical studies of causes, symptoms and treatment of abnormal behavior; problems and advantages of creating a classification scheme for abnormal behavior; the major diagnostic categories and review of the more common patterns of abnormal behavior; and how such disorders arise from subtle interactions between organic or psychological predisposition. Prerequisite: PSY 250, or PSY 101 and any one of STA 201, STA 202, NGN 211 or QBA 201.

PSY 302 Developmental Psychology (3-0-3). Explores how human psychology changes over time. Considers various factors in development from conception

until death, including biological, cognitive, social and cultural influences. Addresses development across the lifespan, from infancy to adulthood. Prerequisite: PSY 250, or PSY 101 and any one of STA 201, STA 202, NGN 211 or QBA 201.

PSY 303 Health Psychology (3-0-3). Explores current research findings on how psychological and behavioral factors influence health and illness through a multidisciplinary approach drawing from psychology, sociology, anthropology and biology. Covers the impact of illness on the psyche. Prerequisite: PSY 250, or PSY 101 and any one of STA 201, STA 202, NGN 211 or QBA 201.

PSY 304 Personality Psychology (3-0-3). Provides a comprehensive overview of the role of personality in psychology. Develops and engages the critical thinking skills that are characteristic of behavioral scientists. Examines contemporary theories and explores the critique of social constructionists. Demonstrates the understanding of human behavior, drawing on phenomenology and personal construct theory. Prerequisite: PSY 250, or PSY 101 and any one of STA 201, STA 202, NGN 211 or QBA 201.

PSY 305 Cognitive Psychology (3-0-3). Provides a comprehensive overview of the role of cognition in psychology. Develops and engages the critical thinking skills that are characteristic of behavioral scientists. Explores the basics of cognitive psychology through the coverage of cognitive neuroscience, attention and consciousness, perception, memory, knowledge representation, language, problem solving and creativity, decision making and reasoning, cognitive development and intelligence. Prerequisite: PSY 250, or PSY 101 and any one of STA 201, STA 202, NGN 211 or QBA 201.

PSY 306 Organizational Psychology (3-0-3). Explores the psychology of organizations at the individual and group level using an evidence-based approach. Investigates a variety of topics related to organizations such as teamwork, leadership, motivation and performance evaluation. Emphasizes an understanding of research methods and data science in the context of organizations. Prerequisite: PSY 250, or PSY 101 and any one of STA 201, STA 202, NGN 211 or QBA 201.

PSY 309 Psychology of Bilingualism (3-0-3). Explores psychological perspectives related to the ability to speak more than one language. Focuses on the impact of bilingualism on cognitive growth and development. Covers the neurological aspects of bilingualism and the impact that speaking, reading or writing in two languages has on the brain. Considers how the ability to speak more than one language alters perceptions of the world and consequently influences thinking. Prerequisites: PSY 250, or PSY 101 and any one of STA 201, STA 202, NGN 211 or QBA 201.

PSY 311 Biopsychology (3-0-3). Explores the physiology of behavior and experience. Examines core concepts in the field of biopsychology including but not limited to the anatomy and function of the human nervous system and the biological foundation of psychological processes. Examines recent research and theories regarding the impact of biological functions on behavior. Prerequisites: PSY 250, or PSY 101 and any one of STA 201, STA 202, NGN 211 or QBA 201; and BIO 101 and BIO 101L, or BIO 103.

PSY 312 Psychology of Creativity (3-0-3). Provides a comprehensive overview of the psychological processes underlying creativity. Examines contemporary theories of creative persons, products and process. Explores creativity from cognitive, developmental, biological, clinical, social, educational and cultural perspectives. Illustrates these theories and perspectives with examples from art, literature and science. Prerequisite: PSY 250, or PSY 101 and any one of STA 201, STA 202, NGN 211 or QBA 201.

PSY 313 Psychotherapy and Counseling (3-0-3). Examines major psychotherapy and counseling approaches such as the cognitive, behavioral, humanistic, psychodynamic and integrative models including their development and theoretical background. Provides an overview of psychotherapeutic techniques in an applied context. Discusses ethical boundaries linked to the therapist-client relationship. Evaluates treatment effectiveness of such psychotherapeutic approaches given the current evidence base. Prerequisite: PSY 301 or PSY 303 or PSY 311.

PSY 314 Psychology of Teaching and Learning (3-0-3). Explores psychological research on teaching and learning. Uses an evidence-based approach to identify the factors that improve teaching and learning with an emphasis on experimental research. Focuses on teaching and learning at the post-secondary level including topics such as knowledge acquisition, problem solving, critical thinking, creativity, skill development and the teaching of psychology. Provides practical experience in teaching evaluation, creating course materials and assistance with classroom activities. Prerequisite: PSY 250, or PSY 101 or PSY 102 and any one of STA 201, STA 202, NGN 211 or QBA 201.

PSY 321 Cultural Psychology (3-0-3). Provides an overview of the role of culture in human thoughts, feelings and behaviors. Focuses on how psychological processes are shaped by the people and information that occupy an individual's living environment. Presents theories and research on such topics as human development, selfhood, motivation, cognition, emotion and social relationships. Prerequisite: PSY 250, or PSY 101 or PSY 102 and any one of STA 201, STA 202, NGN 211 or QBA 201.

PSY 322 Stereotypes, Prejudice and Discrimination (3-0-3). Introduces core concepts related to stereotyping, prejudice, discrimination, stigma and intergroup relations. Focuses on how perceiving other people as somehow different from ourselves can impact our thoughts, feelings and behaviors toward those people at very basic levels. Addresses how stereotypes are formed, maintained and changed; why prejudice exists and how it impacts society; and how people can try to control or change these processes. Prerequisite: PSY 250, or PSY 101 or PSY 102 and any one of STA 201, STA 202, NGN 211 or QBA 201.

PSY 323 Psychology of Religion (3-0-3). Focuses on aspects of religiosity and spirituality that can be investigated scientifically. Explores connections between religiosity and social behavior, personal development, cognition, biological processes and relationships. Employs an evidence-based approach to identify factors that influence religious psychology and that are influenced by religious and spiritual experience. Addresses religiosity and spirituality as cross-cultural human practices. Prerequisite: PSY 250, or PSY 101 or PSY 102 and any one of STA 201, STA 202, NGN 211 or QBA 201.

PSY 331 Psychology of Language Development (3-0-3). Provides a comprehensive overview of language development during different stages of life, including childhood and adolescence. Examines phonological, lexical and syntactic processes, as well as biological mechanisms involved in language development. Compares and contrasts different theories and analyzes empirical findings in this field. Explores language development in special populations and different cultural contexts. Prerequisite: PSY 250.

PSY 350 Research Methods II (3-0-3). Explores advanced psychological research methods and links them to statistical analyses. Investigates sophisticated research designs such as between and within-subjects experiments, factorial designs, mediation, moderation, meta-analysis and clinical trials. Guides students through the steps of the experimental process, emphasizing background research, study design, material creation, data collection and presentation. Prerequisites: PSY 250 and ENG 204.

PSY 351 Psychology Research Experience (3-0-3). Provides hands-on experience in psychological research. Offers the opportunity to work with faculty in reviewing scientific literature, creating

research materials, guiding participants through studies and analyzing data. Aims to produce results that can be submitted for publication in international scientific journals. Addresses techniques for lab organization and the promotion of research. Prerequisite: PSY 350.

PSY 403 Personal and Professional Development (3-0-3). Focuses on the development of personal and professional goals using key concepts and research findings in psychology. Explores the connection between research in psychology and important post-graduate relationships in the home, workplace and community. Addresses the creation of strategies and materials for post-graduate employment. Restricted to BAPSY students. Prerequisites: PSY 250 and junior I standing.

PSY 404 History and Systems (3-0-3). Explores major developments and ideas in the history of psychology as an academic discipline. Addresses such topics as the history of ideas about "the mind," key historical and social events that shaped the field, when and how psychology became a science, life histories of psychologists, and how ideas about what is "normal" shape and are shaped by psychology. Prerequisites: PSY 350 and senior standing.

PSY 490 Research Design (3-0-3). Focuses on the development of an empirical research project from the concept phase to the creation of materials and procedures with guidance from faculty supervisors. Culminates in a public presentation and defense of the study design before a panel of psychologists and other human science researchers and practitioners. Restricted to BAPSY students. Prerequisites: PSY 350 and senior standing.

PSY 497 Internship in Psychology (0-0-0). Provides an opportunity to apply psychological theories and research to professional experience in external organizations through a 200-hour internship. Aims to improve administrative and relationship skills in professional settings. Aims to refine personal development goals and aspirations after graduation. Graded as Pass/Fail. Prerequisites: PSY 403 and junior II standing. Registration fee applies.

SOC Sociology

SOC 201 Introduction to Sociology (3-0-3). Surveys the discipline and provides a foundation for other sociology courses. Introduces some of the major concepts, theories and research findings of sociology. Considers topics such as education, race and ethnicity, organizations, the mass media, poverty and social deviance. Prerequisite: WRI 102.

SOC 203 Social Problems and Inequality (3-0-3). Introduces the sociological study of contemporary social problems and inequality. Examines how issues such as poverty, gender discrimination, racism, educational access, environmental justice and labor migration are socially constructed, maintained and challenged. Investigates how social problems play out in the Global South, particularly in the Middle East region. Prerequisite: WRI 102.

SOC 210 Religion and Society (3-0-3). Introduces a sociological approach to studying religion. Analyzes the interactions between religion and social environments, beliefs, practices and organizations. Explores processes by which individuals acquire and maintain religious beliefs and identities, and the role of religion among its members and within society. Prerequisite: WRI 102.

SOC 220 American Society (3-0-3). Examines how American society is shaped by such social forces as race, class and gender. Considers additional topics such as immigration past and present, social movements, citizenship and democracy, and social control and deviance. Prerequisite: WRI 102.

SOC 230 Introduction to Chinese Culture and Society (3-0-3). Introduces basic sociological perspectives on culture and social change. Examines the foundations of Chinese identity and elements of Chinese culture. Considers the impact of rapid social changes during the 20th century. Explores topics such as ethnicity, gender, marriage, family, population, religion, economy, education and social inequality. Discusses the Chinese diasporas. Prerequisite: WRI 102.

SOC 240 Technology and Society (3-0-3). Examines how technology transforms societies worldwide. Explores effects of technology on economic, cultural and political systems. Investigates real-world examples to understand technology's role in social change, inequality and shaping perceptions of global events. Discusses technology's influence on education, healthcare and work. Assesses the ethical implications of technological advancements and their broader societal impacts. Prerequisite: WRI 102.

SOC 302 Environmental Sociology (3-0-3). Examines how societies adapt to and transform their physical environment. Considers topics such as sustainable development, environmentalism as a social movement, public policy and urban sprawl. Prerequisite: SOC 203.

SOC 320 East Asian Societies (3-0-3). Examines contemporary economic, political, social and cultural changes in East Asia, particularly in Mainland China, Taiwan, South Korea and Japan. Explores cultural similarities and variations within East Asia. Covers aspects of culture and religion, social stratification systems, marriage and family, education, economic development, political systems, popular culture, demographic changes and environmental problems in East Asia. Prerequisite: ANT 205 or GEO 201 or HIS 206 or SOC 201 or SOC 203 or SOC 220 or SOC 230.

SOC 370 Women's Empowerment and International Development (3-0-3). Examines international development from a sociological perspective. Addresses the causes of women's deprivation by focusing on how global forces influence the political, social and cultural constructions of women's social role. Demonstrates an understanding of the roles of government and non-governmental organizations that seek to offer women's empowerment as a strategy in international development. Prerequisite: ANT 205 or HIS 208 or POL 201 or SOC 201 or SOC 203.

SOC 380 Urban Sociology (3-0-3). Explores changing urban life in different cultural, social and historical settings. Examines both classic and contemporary debates within urban sociology. Considers topics such as social segregation, urban planning, homelessness, urban development and public service delivery. Prerequisite: ANT 205 or DES 121 or GEO 201 or SOC 201 or SOC 203.

STA Statistics

STA 201 Introduction to Statistics for Engineering and Natural Sciences (3-1-3). (Equivalent to NGN 211). Explores descriptive statistics, probability theory and random variables, discrete and continuous probability distributions, experimental design and sampling, estimation, hypothesis testing, correlation, simple and multiple regression analysis, goodness-of-fit tests and the use of statistical computer software. Not open to SBA students in the BSBA degree program. Not open to students who have completed STA 202 or QBA 201. Prerequisite: MTH 103 or MTH 111. Lab/Tech fee rate A applies.

STA 202 Introduction to Statistics for Social Sciences (3-1-3). Introduces acquisition and development of statistical methods that are commonly used in social sciences. Methods covered include techniques for classification of data, descriptive statistics, discrete random variables and the normal probability distribution, sampling techniques and experimental design, estimation, hypothesis testing, goodness-of-fit tests, simple regression and correlation, and the

use of statistical computer software. Not open to SBA students in the BSBA degree program or College of Engineering students. Not open to students who have completed STA 201 or NGN 211 or QBA 201. Prerequisite: MTH 100 or MTH 102 or MTH 103 or MTH 111. Lab/Tech fee rate A applies.

STA 233 Introduction to Survey Sampling and Analysis (3-0-3). Introduces acquisition and development of survey design, and survey analysis. Covers techniques for survey sampling such as simple random sampling, cluster, stratified, systematic, and simulation. Addresses the analysis of survey results including statistical estimation methods and the use of statistical computer software. Prerequisite: STA 201 or STA 202 or NGN 211 or QBA 201.

STA 301 Foundations of Statistics for Data Science (3-0-3). Introduces topics and techniques of statistical analysis used in the field of data science. Provides a review of probability distributions, Bayesian probability and statistical inference. Addresses the design of experiments and observational studies. Covers single factor and multifactor analysis of variance and some supervised machine learning techniques including regression modeling: simple and multiple regression, logistic models, smoothing splines, generalized additive models and Naïve Bayes classifier. Prerequisite: STA 201 or STA 202 or NGN 211 or QBA 201.

STA 401 Introduction to Data Mining (3-0-3). Introduces the fundamentals of data mining and techniques used to analyze big data. Covers data cleaning, variable selection and transformation, data visualization techniques, dimensionality reduction, clustering, decision tree, neural networks, regression modeling, model comparison, association and sequence analysis. Prerequisites: CMP 120 or ISA 201 or STA 301 or MTH 243, and STA 201 or STA 202 or NGN 211 or QBA 201. Lab/Tech fee rate A applies.

THE Theatre

THE 101 Theatre Appreciation (3-0-3). Introduces fundamentals of theatre, history, plays, playwriting, movement and expression, acting and production. Explores the historical context of the development of Western Drama, and applies practical understanding of those elements. Explores theories related to each specific element.

THE 102 Introduction to Acting (2-1-3). Explorers the speech, movement and improvisational techniques used to create dramatic expression and effective stage communication. Introduces the Stanislavsky system. Includes interactive ensemble performances.

THE 141 Stagecraft (2-1-3). Presents lectures and classroom demonstrations in the construction, painting, lighting, handling of scenery, and the making of properties. Requires crew hours.

THE 244 Theatrical Costume Laboratory (0-4-1). Addresses the knowledge and skills necessary to work on backstage costume crew. Covers the use of various costume shop tools and materials. Explores assembly, construction and alteration of costumes. Studies the execution of costume plots, action charts and wardrobe plans. Graded as Pass/Fail. Repeatable up to 3 credit hours. Prerequisite: audition with professor.

THE 245 Technical Theatre Laboratory (0-4-1). Addresses the knowledge and skills necessary to work on backstage crews. Covers assembly and construction of set and prop pieces, hanging and focusing of lighting equipment. Studies the execution of lighting and sound plots, and theatrical ground plans. Includes running of live theatrical productions. Graded as Pass/Fail. Repeatable up to 3 credit hours. Prerequisite: permission of the instructor.

THE 251 Rehearsal and Performance (0-4-1). Provides practical experience turning a dramatic script into a theatrical performance. Employs rehearsal and performance techniques used in professional production. Emphasize full development of character creation. Explores the role of the stage manager in full detail. Graded as Pass/Fail. Repeatable up to 3 credit hours. Prerequisite: consent of instructor based on audition.

THE 255 Voice and Movement (3-0-3). Introduces the study, analysis and application of various styles of movement required in theatrical productions, and how the voice and body work as one. Studies body language, analysis of movement, types and rhythms of movement and pantomime. Prerequisite: THE 101 or THE 102 or THE 141 or THE 245 or THE 251.

THE 301 Musical Theatre History (3-0-3). Explores the history and development of the musical theatre genre. Covers playwriting structure and musical elements. Explores the genre from the Operetta to modern day Broadway. Researches musical theatre composers and lyricists. Prerequisite: ENG 203 or ENG 204.

THE 321 Arts Management (3-0-3). Examines fundamentals of management as it applies to the arts, including theater, children's theater, opera, concerts, museums, film and other cultural events. Prerequisite: ENG 203 or ENG 204.

THE 330 Dramatic Literature (3-0-3). Evaluates elements of theatre, plays, playwriting, movement and expression, acting and production through detailed script analysis. Interprets the historical context of the development of Western drama and applies practical understanding of those elements. Analyzes theories related to each specific element. Prerequisite: ENG 203 or ENG 204.

THE 342 Scenic Design (3-0-3). Applies vocabulary and analytical tools that scenic designers use. Combines color theory and picture plane composition, and demonstrates how the principles of two-dimensional and three-dimensional design impact the theater artist. Explores scale model designing based on research and design choices. Prerequisites: THE 101 or THE 102 or THE 141 or THE 251 or ARC 201 or ART 101 or ART 111 or DES 111, and ENG 203 or ENG 204.

THE 346 Theatrical Makeup and Special Effects (2-1-3). Explores the theory and practice of two-dimensional and three-dimensional makeup for live performance. Includes designing a face schematic based on facial anatomy, character analysis and historical resources. Creates makeup designs with adaptations for different performance spaces, themes, characters and time periods. Explores creation of various aspects of special effects make-up. Prerequisite: ENG 203 or ENG 204.

THE 347 Costume Design (2-1-3). Investigates challenges in the creative process of costume design through specific design research projects. Interprets dress history and its development in diverse cultural contexts. Examines the basic elements of design like color, texture, proportions and silhouette, and its effective application in character development and analysis. Builds individual design and presentational skills such as drawing, painting and collages, which are used to develop the visual narrative of a play. Prerequisites: THE 101 or THE 102 or THE 141 or THE 244 or THE 245 or THE 251 or ART 101 or DES 101 or DES 111 or DES 131, and ENG 203 or ENG 204.

THE 351 Advanced Rehearsal and Performance (0-4-1). Provides advanced experience turning a dramatic script into a theatrical performance. Employs rehearsal and performance techniques used in professional production. Emphasizes the full development of character creation, which includes creation of a researched character history profile. Explores the role of stage manager in full detail, which includes development of a complete prompt book. Graded as Pass/Fail. Repeatable up to 3 credit hours. Prerequisite: THE 251 (earned 3 credit hours).

THE 352 Dance Styles for the Stage (2-1-3). Explores various styles of dance for the stage and examines the history of diverse techniques in dance. Covers

methods and skills needed for dance performances through in-class dance activities and rehearsals. Addresses the factors that influence the development and performance of choreographed dance routines developed for the stage. Prerequisite: ENG 203 or ENG 204.

THE 355 Acting Styles (3-0-3). Explores an advanced approach to acting in different styles. Prepares for independent work as an actor utilizing the Stanislavsky system as it applies to various acting styles. Includes in-depth character study, readings, character history and analyses. Prerequisite: ENG 203 or ENG 204.

THE 361 Playwriting (3-0-3). Explores the process of playwriting. Covers playwriting structure and implications of theatre spaces. Creates opportunities to workshop student plays. Examines well-known plays, as well as foundations laid by Aristotle. Develops student-written one-act plays. Culminates with a final stage reading of each play that is read by actors and classmates. Prerequisite: ENG 203 or ENG 204.

TRA Translation and Interpreting

TRA 100 History and Principles of Arabic Translation (3-0-3). Reviews the history of Arabic translation from pre-Islamic times though the Golden Age of Arab-Islamic civilization to the modern era. Relates Arab culture to the tradition of translation. Deals with the practice of Arabic translation on an elementary level: word and sentence.

TRA 210 Introduction to Translation (3-0-3). Introduces the field of translation and the skills necessary to work as a successful translator. Emphasizes a problem-solving approach, supported by text analysis (both in the pre-translation phase and in subsequent editing and evaluation). Requires practical tasks that involve translation into and out of English and Arabic. Prerequisite/concurrent: WRI 101.

TRA 220 Theoretical and Practical Issues in Translation (3-0-3). Views translation practice as seen in the light of various theories and models of translation. Invokes theories informed by modern linguistics, cultural studies and literary criticism with the aim of sensitizing the translator to the intricacies of the task. Assesses and examines at various levels of language organization (word level, sentence level, text level, pragmatics, etc.) the key notion of "equivalence." Examines issues such as the translation of metaphor and idiomatic expressions, dealing with meaningful repetition and biased translation shifts. Prerequisite: WRI 102.

TRA 230 Translating Arabic Literary Texts (3-0-3). Introduces basic theories of literary translation and applies them to a selection of Arabic literary texts from different genres. Covers linguistic and non-linguistic (cultural) dimensions of literary translation. Highlights the role of literary translation in human interaction. Prerequisite: WRI 102.

TRA 301 Modern Media Translation (3-0-3). Focuses on those modes and situations that relate to the translation of the print media. Includes the processing and translation of advertisements, news reports, magazine articles, public relations and promotional literature, and publicity materials within a framework of media translation studies. Prerequisite: TRA 210 or TRA 220, or ARA 101 and MDC 150.

TRA 307 Screen Translation (3-0-3). Introduces screen translation and the stylistic features and cultural aspects of screen productions. Provides training in the translation of scripts of various cinema and TV scripts from and into Arabic. Deals with the problems encountered by the translator in rendering these genres. Prerequisite: TRA 210 or TRA 220.

WRI Writing Studies

WRI 001 Basic Academic Writing (3-0-3). Focuses on critical reading and writing skills, basic invention strategies, informal writing assignments, paragraph development and contextualized grammar instruction. Introduces narrative, expository and reflective forms of academic writing. Students must successfully complete WRI 001 by the end of sophomore I standing. Credit hours will not count in the earned hours, and grades earned in this course will not count in the grade point average. Prerequisite: EPT score less than 4.

WRI 101 Academic Writing I (3-0-3). Focuses on invention, analysis, critical thinking and the rhetorical situation. Introduces analytic and introductory argument essays. Introduces quotation, paraphrase and summary, and the basics of a clear, effective and varied academic style. Students must successfully complete WRI 101 by the end of junior I standing. Prerequisite: EPT score of 4 or ELPT score of 1 or WRI 001, or placement into WRI 101.

WRI 102 Academic Writing II (3-0-3). Introduces critical writing and information literacy skills. Focuses on analyzing and evaluating texts, constructing cogent arguments and using sources effectively. Builds on analytic thinking, argument, critical reading skills and an academic style developed in WRI 101. Introduces the argument/persuasion essay, evaluation essay and short research essay. Students must successfully complete WRI 102 by the end of junior I standing. Prerequisite: WRI 101.

WRI 221 Peer Tutoring in Writing (3-0-3). Focuses on issues and theories of writing and peer-collaboration as they relate to peer tutoring in writing. Involves readings and class discussion that encourages critical thinking about writing and the teaching and tutoring of writing. Explores the views of different writers towards their craft, writers as individuals, issues of writing in a second language, and the role of "talking" in writing. Provides preparation for the second part of the course in which students prepare for possible roles as Writing Center Tutors or Writing Fellows. Focuses largely on "hands-on" learning as students observe writing center tutorials, experience teaching each other, and comment on sample papers. Prerequisite/concurrent: ENG 203 or ENG 204.

WST Women's Studies

WST 240 Introduction to Women's Studies (3-0-3). Introduces women's studies, its perspectives and its interdisciplinary nature. Emphasizes feminist analysis and critical thought as a way of making knowledge. Draws on history, literature, popular culture and the arts to analyze the forces that shape women's lives and examine women's position in culture and society. Prerequisite: WRI 102.

WST 250 Women's Voices Across Cultures (3-0-3). Examines debates surrounding the genre of autobiographical writing by women across cultures. Considers the aspirations, frustrations and achievements of women as documented in their own words. Explores the ways in which language and representation in various cultures shape subjectivity, challenge and redefine the boundaries of the autonomous self. Prerequisite: WRI 102.

WST 300 Women, Science and Technology (3-0-3). Examines the relationships between gender and science and technology. Appraises the most notable achievements of women in science and technology across cultures. Investigates how scientific and technical power and knowledge operate in society. Analyzes the social barriers faced by women seeking a scientific career. Presents feminist critiques of science and technology. Prerequisite: ENG 203 or ENG 204 or HIS 208 or WST 240 or WST 250.

AUS Courses Offered Abroad

AUS courses offered abroad provide degree-seeking students with the opportunity to complete and earn credit hours for AUS courses or AUS studios that are conducted in a regional or an international site.

Course Abroad (1 to 3 credit hours). Features on-site visits offering the opportunity to experience first-hand regional and international design practices or to engage in site-specific design projects, highlighting particular themes relevant to the specific location. Department permission is required for enrollment and credit. Can be repeated for credit. Prerequisites: topic specific. Lab/Tech fee may apply.

Studio Abroad (3 to 6 credit hours). Provides studio activities conducted in regional and international sites promoting a global-oriented approach to design. Prerequisite: studio specific.

Courses abroad are numbered as 193, 293, 393 or 493 courses. Studio abroad courses are numbered as 498. The three-letter course prefix reflects the field of study of the course.

Descriptions of AUS courses offered abroad are made available in the college during registration.

Independent Study

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

Students are allowed to take one independent study. A second independent study could be approved by the student's associate dean for graduation purposes only.

Independent Course (1 to 4 credit hours). An existing course offered in an independent study format. The course is coded using the course number in the catalog. Approved special topic courses can be offered in an independent course format.

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

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

Directed Study (1 to 4 credit hours). An investigation under faculty supervision beyond the scope of existing courses. Prerequisites: minimum CGPA of 3.00, junior II standing and consent of the instructor.

Directed study courses are numbered as 396 or 496 courses. The three-letter course prefix reflects the field of study of the course (e.g., directed study courses in Arabic are coded as ARA 396 or ARA 496).

For more details on independent study, please refer to Registration in Independent Study Courses in the Academic Policies and Regulations section of this catalog.

Special Topic Courses

Special Topic (1 to 4 credit hours). Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: topic specific. Lab/Tech fee may apply.

Special topic courses are numbered as 194, 294, 394 or 494 courses. The three-letter course prefix reflects the field of study of the course.

Special topic courses at the 300 level require sophomore standing or above; 400-level special topic courses are restricted to junior standing and above.

Descriptions of particular special topic courses are made available in the college during registration.

College of Engineering

ASE Aerospace Engineering

ASE 415 Aircraft Stability and Control (3-0-3). Covers reference frames, equations of motion for a rigid body, forces and moments, trim, linearization, dynamic response characteristics for aircraft and spacecraft. Includes aircraft stability derivatives, static longitudinal and lateral stability, handling qualities, phugoid, short period, spiral, roll subsidence, Dutch roll modes and the corresponding transfer functions. Prerequisite: MCE 310.

ASE 450 Applied Aerodynamics (3-0-3). Covers basic equations of aerodynamics, potential flow theory, incompressible flow over airfoils, incompressible flow over finite wings, three dimensional flows and panel techniques and elements of airplane performance: rate of climb, gliding flight, range and endurance, takeoff and landing performance. Prerequisite: MCE 240; prerequisite/concurrent: MCE 325.

ASE 452 Aerospace Propulsion (3-0-3). Focuses on air-breathing propulsion systems and rocket engines. Covers turbojets, turbofans, turboprops, ramjets and their operational envelope. Addresses gas turbine thrust, specific fuel consumption, efficiency and design process. Considers design-point analysis of ideal and real gas turbines, components performance and rocket propulsion systems. Prerequisites: MCE 240 and MCE 241.

BME Biomedical Engineering

BME 210 Biomedical Ethics (1-0-1). Applies ethical principles and decision-making processes to selected problems in medicine, health care and biotechnology. Gives special attention to end-of-life choices, reproductive rights and technologies, organ transplantation, research ethics, genetic engineering and allocation of scarce resources. Focuses on social, legal, economic and scientific issues in ethical decisions in medicine. Prerequisites: BIO 101, BIO 101L and WRI 102.

BME 410 Biomedical Systems Modeling I (3-0-3). (Equivalent to CBE 483). Introduces and applies engineering principles including biomechanics, fluid mechanics, heat transfer, chemical reaction kinetics and materials science to model physiological systems and solve medical problems. Prerequisite/concurrent: BIO 210.

BME 420 Biomedical Electronics I (3-0-3). (Equivalent to ELE 432). Covers biomedical sensors and instrumentation, biopotential electrode, chemical and clinical biosensors, bioelectric phenomena, the electrocardiograph, the electroencephalograph, blood pressure and cardiac output measurements, and electrical safety. Not open to electrical engineering students. Prerequisite: ELE 225 or ELE 341.

BME 424L Biomedical Electronics Laboratory (0-3-1). Explores data acquisition tools, medical signal processing, biopotential amplifiers, biopotentials, bioimpedance measurements, blood pressure measurements, respiratory measurements, ultrasonic measurements and electrical safety. Prerequisite/concurrent: BME 420. Lab/Tech fee rate B applies.

CBE Chemical and Biological Engineering

CBE 236 Biomaterials (3-0-3). Introduces biomaterials sciences. Covers classes of materials used in the biological areas. Explores relations between structure and properties of biomaterials. Examines the compatibility of metals, ceramic, polymers, composites and semiconductors with body tissues. Prerequisites: BIO 101 and BIO 101L; prerequisite/concurrent: CHM 215.

CBE 384 Biochemical Engineering Principles (3-0-3). Introduces chemical engineering principles and approaches to biologically based systems and processes. Covers enzyme kinetics and immobilization; basic microbiology and biochemistry; microbial growth kinetics and stoichiometry; bioreactor design, optimization and scale-up; aeration, agitation and oxygen transfer; and biological wastewater treatment and biofuels. Prerequisite/concurrent: CHE 321.

CBE 414 Biological Separation Processes (2-1-2). Covers separation methods used in the biotechnology industry. Examines the governing principles and applications, and scale-up of biological separation processes. Key topics include distillation, centrifugation, filtration, extraction, membrane methods and chromatography. Prerequisites: BIO 101, CHE 214, CHE 329 and CHM 217.

CBE 441 Pharmaceutical Manufacturing (3-0-3). Introduces pharmaceutical manufacturing. Provides an overview of the pharmaceutical industry and its regulations. Covers the basic concepts of the major manufacturing methods and their component unit operations in pharmaceutical industries. Prerequisite: CHE 329.

CBE 445 Nanomaterials for Biological Applications (3-0-3). Covers the characteristics and synthesis of nanomaterials. Introduces fundamental concepts on the nature of bio-nanomaterials, structure, stability, and their interactions in biological environments. Explains the essential size-dependent physical and chemical properties of nanomaterials as well as their composites. Examines the biocompatibility and fundamental applications of nanomaterials in biological systems. Covers the basic ethical and health-related practices related to the applications of nanomaterials. Prerequisite: CBE 236.

CBE 446 Biotechnology for Air Pollution Control (3-0-3). Introduces biotechnology processes that are economical and environmentally benign methods in industrial air pollution control. Covers biological treatment methods of volatile organic and inorganic odorous compounds which are emitted in large quantities that create hazards to the ecosystem and health effects to humans. Covers basics of microbiology, biofilm theory, kinetics of biodegradation, types of biological reactors used for air pollution control, modeling and scale-up of biological reactors and industrial applications, and case studies of bioreactors. Prerequisite: CHE 321.

CBE 448 Biomass and Bioenergy (3-0-3). Covers the characteristics of biomass and feedstocks and their conversion to biofuels through thermal, chemical and biological processes. Includes biofuel properties and their potential applications in energy production systems, thermochemical conversion routes (pyrolysis and gasification), anaerobic digestion and transesterification processes. Introduces simulation of bioenergy systems using Ansys Fluent multiphase flow computational model. Prerequisites/concurrent: CHE 240 and CHE 329.

CBE 453L Bioengineering Laboratory (0-3-1). Covers experiments in biological engineering. Comprises hands-on laboratory experiments illustrating applications of bioengineering principles. Covers experiments in biomass culturing, fermentation, oil extraction, microbial fuel cells, membrane bioreactors, biotrickling filters, process control and state-of-the art applications in bioprinting, microfluidics

and drug delivery. Not open to students who have completed CHE 452. Prerequisite/concurrent: CBE 384. Lab/Tech fee rate A applies.

CBE 483 Fundamentals of Biomedical Engineering (3-0-3). (Equivalent to BME 410). Uses chemical engineering principles including fluid mechanics, heat transfer, kinetics and material science to model physiological systems and solve medical problems. Prerequisite: BIO 210 or CHE 300.

CBE 490 Senior Design Project I (1-2-1). Covers the engineering design process through an open-ended, team-based project of disciplinary relevance. Applies discipline-specific methods and tools to problem identification, definition of objectives and constraints, evaluation of alternatives, and development of a preliminary design. Addresses factors such as sustainability, safety, ethics, economics, societal impact and standards in the design process. Emphasizes the aspects of innovation, entrepreneurship and intellectual property. Develops professional teamwork and communication skills. Prerequisite: ENG 204; prerequisites/concurrent: IEN 301 and CHE 432.

CBE 491 Senior Design Project II (1-3-2). Continues the work of CBE 490. Emphasizes the application of engineering principles to solve real-world problems. Includes exposure to industry practices through interaction with companies or professionals. Prerequisite: CBE 490.

CBE 497 Professional Training in Chemical and Biological Engineering (0-6-2). Provides opportunities for the application of engineering knowledge and skills to actual problems in a real-life work setting. Enhances learning and soft skills through practical experience. Reinforces objective-setting and performance measurement through a structured reporting process. Requires a minimum of 16 weeks of approved professional experience of on-the-job training. Graded as Pass/No Pass. Prerequisites: ENG 204, junior standing and approval of internship coordinator.

CEM Digital Construction Engineering and Management

CEM 200 Introduction to Digital Construction (3-0-3). Introduces the fundamentals of digital construction. Develops the necessary understanding of digital technologies and their integration in the architecture, engineering and construction (AEC) industry. Explains the significance of digital transformation and its impact in the international construction industry. Covers the connected nature of the design and execution of construction projects, the deficiencies in the traditional approaches to managing these projects, and the value of building information modeling (BIM) and new technology in facilitating the construction process. Prerequisites: CVE 111 and NGN 112; prerequisite/concurrent: CEM 201.

CEM 201 Building Information Modeling I Laboratory (0-3-1). Covers introduction to the basic concepts of building information modeling (BIM); application of commercial BIM software to create and modify architectural components, dimensioning and 3D visualization; and preparation of architectural drawings and schedules. Prerequisite/concurrent: CEM 200. Lab/Tech fee rate A applies.

CEM 250 Sustainable Construction and Automation (3-0-3). Introduces construction methods and automation technology in the built environment. Presents automated modular construction techniques, efficiency and productivity management with automation and integration of smart building systems. Analyzes the methods, processes and systems that enable greater machine autonomy in construction activities. Compares robotic building methods in terms of craft, print and diffusion. Discusses decision making. Prerequisite: CEM 200; prerequisite/concurrent: CEM 251.

CEM 251 Building Information Modeling II Laboratory (0-3-1). Covers application of commercial BIM software to create and modify structural components, dimensioning and 3D visualization; preparation of structural drawings and schedules; application of commercial BIM software to create and modify basic MEP components; preparation of bill of quantities for architectural, structural and MEP components. Prerequisite: CEM 201; prerequisite/concurrent: CEM 250. Lab/Tech fee rate A applies.

CEM 300 Digital Construction Management (3-0-3). Examines the use of digital technologies for managing construction projects. Covers use of cloud-based software to manage submittals, drawings, subcontracts, purchase orders, communications, payments, site material, field questions and change orders. Covers use of BIM and other digital technologies for 4D and 5D cost and schedule, scope and change management. Prerequisites: CEM 250 and CVE 367; prerequisite/concurrent: CEM 301.

CEM 301 Building Information Modeling III Laboratory (0-3-1). Covers application of commercial BIM software to integrate multiple projects, create timeline simulations, detect conflicts, produce realistic 3D images, animation videos and construction sequencing simulations; application of BIM collaboration platform to manage teams, workflows and documents. Prerequisite: CEM 251; prerequisite/concurrent: CEM 300. Lab/Tech fee rate A applies.

CEM 325 Geotechnical Engineering (3-1-3). Introduces soil types and site exploration; shear strength of soils; and construction of soil embankment. Addresses modern digital approaches for integrating geotechnical testing data and responses. Covers stresses within soil mass, and settlement, design and construction of shallow and deep foundation of buildings. Introduces single pile tests and construction methods of deep foundation. Not open to civil engineering students. Prerequisite: CVE 223.

CEM 350 Management Systems for Construction (3-0-3). Introduces essential concepts and theory of management systems in construction, including economics, business, accounting, communications, leadership, decision making and optimization methods; basic legal and ethical concepts and the importance of professional engineering licensure in the construction industry; and applies these concepts within the parameters of construction projects and professional case studies. Prerequisites: CEM 250 and CVE 367.

CEM 360 Construction Law in the Digital Age (3-0-3). Discusses current and emerging technologies that influence the legal practice of construction. Analyzes the intricacies of construction contracts, such as liability, traceability, collaboration and transparency, with the introduction of smart contracts, block chain, artificial intelligence, big data and building information modeling. Prerequisites: CEM 250 and CVE 367.

CEM 410 Additive Manufacturing in Construction (3-0-3). Introduces construction methods of digital manufacturing techniques such as concrete printing, metals printing in construction, printed fiber reinforced cement paste and polymer printing in construction. Covers additive manufacturing design and cost in construction, management of extrusion and casting of industrial buildings in the site without formworks. Evaluates the fresh and mechanical properties of 3D structures. Explores industrial potential of additive manufacturing in construction. Examines safety requirements in the site and in finished construction. Prerequisites: CEM 250 and CVE 224.

CEM 415 Transportation Systems (3-0-3). Introduces the principles of transportation engineering systems. Discusses the four-step demand forecasting process. Introduces sustainable mobility options. Illustrates the role of digital and data-driven innovations in transportation systems. Discusses fundamentals of

traffic analysis, highway capacity analysis, traffic impact studies and traffic signal design. Prerequisite: CVE 243.

CEM 420 Smart Urban Mobility (3-0-3). Introduces the path to digital-enabled green mobility in cities. Examines changing cities where travelers' fast-evolving values, priorities, demographics and lifestyle are enabled by digital technology. Covers a spectrum of technology, entrepreneurship, social change and governance that engages the human desire for transformed mobility architecture and anticipates necessary and desirable changes that society will make to move toward such future-relevant, vibrant and sustainable mobility. Prerequisites: CEM 250 and CVE 243.

CEM 430 Smart Civil Infrastructure (3-0-3). Covers features of different civil infrastructures, including buildings, roads, water pipelines and water treatment plants. Includes onsite and remote nondestructive means of infrastructure construction, assessment, operation and maintenance, sensors in civil infrastructure, condition assessment using digital technologies, and use of artificial intelligence for management of infrastructure. Prerequisite: CEM 250.

CEM 440 Construction Safety (3-0-3). Covers safety concerns in the construction worksite, safety engineering analysis techniques, application of engineering practices in accident prevention, failure tree analysis and risk management in the construction industry. Prerequisite: CEM 250.

CEM 450 Foundation and Retaining Systems (3-0-3). Introduces subsoil exploration and soil improvement. Addresses design of piles foundation and pile group capacity and settlement. Covers lateral earth pressure and earth retention systems for underground constructions. Explains sheet pile walls and braced cuts. Prerequisite: CEM 325.

CEM 490 Senior Design Project I (1-2-1). Covers the engineering design process through an open-ended, team-based project of disciplinary relevance. Applies discipline-specific methods and tools to problem identification, definition of objectives and constraints, evaluation of alternatives, and development of a preliminary design. Addresses factors such as sustainability, safety, ethics, economics, societal impact, and standards in the design process. Emphasizes the aspects of innovation, entrepreneurship and intellectual property. Develops professional teamwork and communication skills. Prerequisites: ENG 204 and senior standing; prerequisite/concurrent: IEN 301.

CEM 491 Senior Design Project II (1-3-2). Continues the work of CEM 490. Emphasizes the application of engineering principles to solve real-world problems. Includes exposure to industry practices through interaction with companies or professionals. Prerequisite: CEM 490.

CEM 497 Professional Training in Digital Construction Engineering and Management (0-6-2). Provides opportunities for the application of engineering knowledge and skills to actual problems in a real-life work setting. Enhances learning and soft skills through practical experience. Reinforces objective-setting and performance measurement through a structured reporting process. Requires a minimum of 16 weeks of approved professional experience of on-the-job training. Graded as Pass/No pass. Prerequisites: ENG 204, junior standing and approval of internship coordinator.

CHE Chemical Engineering

CHE 101 Introduction to Chemical and Biological Engineering (0-2-1). Introduces the fields of chemical and biological engineering. Explores the careers and industries employing chemical and biological engineers. Covers experiments, equipment and instrumentation relevant to chemical and biological engineering. Examines chemical and biological industrial processes and products. Introduces safety, health and environmental considerations. Restricted to College of Engineering students. Lab/Tech fee rate A applies.

CHE 205 Principles of Chemical Engineering I (2-1-2). Introduces the analysis of chemical process systems using mass conservation equations, stoichiometry and steady state calculations. Covers unit conversions and process flow sheets. Introduces ideal and real gas relationships. Prerequisites: CHM 101, CHM 101L and MTH 103.

CHE 206 Principles of Chemical Engineering II (3-1-3). Covers material balances for multiphase systems, the application of energy balances to chemical engineering equipment and processes. Includes the following topics: steady state energy balances with and without chemical reactions, heat of solution and mixing, humidity charts and simultaneous material and energy balances. Introduces process simulation. Discusses contemporary issues in chemical engineering. Prerequisite: CHE 205; prerequisites/concurrent: CHM 102, CHM 102L and WRI 102.

CHE 214 Chemical Engineering Thermodynamics I (3-1-3). (Equivalent to MCE 241). Studies the first, second and third laws of thermodynamics and their application in chemical engineering; volumetric properties of pure fluids; definitions and use of internal energy, enthalpy, entropy and free energy; Maxwell relations; ideal and real cycles and processes; refrigeration and liquefaction. Prerequisite/concurrent: CHE 206.

CHE 230 Materials Science (3-1-3). Introduces material science, relationships between structure and properties of materials. Includes the following topics: atomic bonding, crystalline structures, crystal defects and imperfections; phase diagrams and equilibrium microstructural development; and properties of engineering materials. Prerequisite/concurrent: CHM 215. Lab/Tech fee rate B applies.

CHE 240 Computer Methods in Chemical Engineering (3-2-3). Covers the use of MATLAB to solve chemical engineering problems. Includes the following numerical techniques: solution of linear and nonlinear algebraic equations, ordinary differential equations, and numerical integration and differentiation. Prerequisite: CHE 205; prerequisites/concurrent: MTH 225, or MTH 205 and MTH 221. Lab/Tech fee rate B applies.

CHE 300 Fluid Mechanics (3-0-3). Explores introductory concepts of fluid mechanics and fluid statics, fluid properties, basic equations of fluid flow, flow of compressible and incompressible fluids in pipes and other shapes, velocity distribution, laminar and turbulent flow, differential analysis of basic viscous incompressible flows, flow past immersed bodies and dimensional analysis. Prerequisites: PHY 101 and PHY 101L; prerequisites/concurrent: CHE 214, and MTH 205 or MTH 225.

CHE 304 Chemical Engineering Thermodynamics II (3-0-3). Examines thermodynamic properties of fluids and mixtures, residual properties, excess properties, phase equilibria and chemical reaction equilibria for gases and liquids. Prerequisite: CHE 214; prerequisite/concurrent: MTH 203.

CHE 307 Heat Transfer (3-0-3). (Equivalent to MCE 344). Covers mechanism of heat transfer; heat transfer by conduction, convection and radiation; and analysis of heat transfer equipment used in chemical engineering. Prerequisites: CHE 206, and MTH 205 or MTH 225; 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: CHE 240; prerequisite/concurrent: CHE 307.

CHE 329 Mass Transfer (3-0-3). Covers mechanisms of mass transfer, laws of diffusion, mass transfer coefficients, theories of mass transfer, and mass

transfer and chemical reactions. Prerequisite: CHE 307.

CHE 350 Chemical Engineering Laboratory I (0-3-1). Covers experiments in fluid flow, heat transfer, and thermodynamic measurement and analysis of devices. Includes experimental design, safety, and report writing. Prerequisite: NGN 211; prerequisites/concurrent: CHE 214 and CHE 307. Lab/Tech fee rate B applies.

CHE 412 Separation Processes (3-0-3). Examines application of mass transfer principles to the design of multi-stage systems and countercurrent differential contacting operations. Prerequisites/concurrent: CHE 304, CHE 329 and CHM 217.

CHE 421 Chemical Process Dynamics and Control (3-0-3). Examines principles of process dynamics and control in chemical engineering applications; transfer functions; block diagrams; input disturbance; frequency response and stability criteria; single and multi-loops; P, PI and PID controllers; and process control software. Prerequisites/concurrent: CHE 321, and CBE 414 or CHE 412.

CHE 432 Process Design and Economics (3-0-3). Covers the application of chemical engineering principles to the design and integration of chemical equipment and processes. Includes the following topics: process design, process heuristics, pollution prevention, waste minimization, fundamentals of engineering economy, plant economics and cost estimation. Prerequisites: CBE 236 or CHE 230, and CHE 321; prerequisite/concurrent: CBE 414 or CHE 412.

CHE 433 Chemical Process Safety (3-0-3). Examines issues in industrial health and safety specific to chemical processes. Includes the following topics: toxicology and toxic releases, risk assessments, the causes of industrial accidents and preventive measures, designing chemical process equipment to reduce the risk of fire and explosion, pressure relief systems, industrial hygiene, and health and safety regulations. Prerequisite: senior standing.

CHE 434 Petroleum Refining Processes (2-2-3). Presents an overview of petroleum refining processes. Includes the following topics: introduction to petroleum, its origins and composition, basic principles of refining, the effect of feedstock on refinery design, selection of refinery units, design of major equipment and refinery economics. Prerequisite: CHM 215; prerequisite/concurrent: CHE 412. Lab/Tech fee rate B applies.

CHE 436 Natural Gas Processing (3-0-3). Provides basic and applied knowledge in natural gas processing. Includes the following topics: characterization of natural gas and its products, phase behavior of natural gas, water-hydrocarbon phase behavior, prevention of hydrate formation, gas sweetening, gas dehydration using glycol, gas dehydration using solid desiccants, natural gas liquids recovery, sulfur recovery and design and sizing of equipment. Prerequisite/concurrent: CHE 432.

CHE 442 Electrochemical Engineering and Energy Systems (3-0-3). Provides an overview of modern electrochemical engineering applications. Covers thermodynamics and mass transfer of electro-chemical systems, electrochemical reactors, various types of batteries and fuel cells as methods to generate electricity. Discusses the impact of existing electrochemical engineering technologies on the environment. Prerequisite: CHE 304 or MCE 341.

CHE 443 Design and Analysis of Experiments (3-0-3). Provides an overview of basic statistical methods and addresses the following topics: analysis of variance, experiments with blocking factors, factorial experiments, two-and three-level factorial designs, blocking and confounding, two-level fractional factorial designs, introduction to regression modeling and response surface methodology, and statistical software packages. Emphasizes applications and case studies related to chemical engineering. Prerequisite: senior standing.

CHE 451 Chemical Engineering Laboratory II (0-3-1). Comprises hands-on laboratory experiments illustrating the application of chemical engineering principles, and calculations. Covers mass transfer equipment, physical and chemical separation, reaction kinetics and reactor design. Includes safety and report writing. Prerequisites: CHE 321 and CHE 350; prerequisite/concurrent: CBE 414 or CHE 412. Lab/Tech fee rate B applies.

CHE 452 Process Dynamics and Control Laboratory (0-3-1). Comprises laboratory experiments illustrating various applications of chemical engineering principles related to process control and dynamics. Covers different control modes such as P, PI, PID and cascade control. Includes experimental design, safety and report writing. Not open to students who have completed CBE 453L. Prerequisite: CHE 350; prerequisite/concurrent: CHE 421. Lab/Tech fee rate B applies.

CHE 461 Air Pollution (3-0-3). Covers environmental pollution; acid gas removal; sulfur oxides, nitrogen oxides and carbon gases removal; removal of volatile organic compounds; design of main process equipment and control devices; and aerosols. Prerequisite/concurrent: CHE 412.

CHE 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. Prerequisites: CHM 101 and CHM 101L. Lab/Tech fee rate B applies.

CHE 470 Waste Management and Control in Chemical Engineering (3-0-3). Covers management and control of gaseous, liquid and solid wastes; regulation and management procedures; waste minimization and resource recovery; and separations and reaction engineering approaches. Prerequisite/concurrent: CHE 412.

CHE 472 Water and Wastewater Treatment Design (2-2-3). Covers design and selection of biological, physical and chemical processes used in water and wastewater treatment, disposal of treated effluent, water quality, and industrial wastewater characterization. Prerequisite/concurrent: CHE 329. Lab/Tech fee rate B applies.

CHE 473 Fundamentals of Carbon Capture and Storage Technology (3-0-3). Provides an overview of the drivers for carbon capture and storage, the technologies and economics. Includes the following topics: introduction to carbon, energy and the atmosphere; carbon capture and storage systems (CCS); carbon capture technologies; geological sequestration; carbon utilization; and potentials and risks related to CCS including financial, environmental and legal aspects. Prerequisite: CHE 329.

CHE 490 Senior Design Project I (1-2-1). Covers the engineering design process through an open-ended, team-based project of disciplinary relevance. Applies discipline-specific methods and tools to problem identification, definition of objectives and constraints, evaluation of alternatives, and development of a preliminary design. Addresses factors such as sustainability, safety, ethics, economics, societal impact and standards in the design process. Emphasizes the aspects of innovation, entrepreneurship and intellectual property. Develops professional teamwork and communication skills. Prerequisite: ENG 204; prerequisites/concurrent: IEN 301 and CHE 432.

CHE 491 Senior Design Project II (1-3-2). Continues the work of CHE 490. Emphasizes the application of engineering principles to solve real-world problems. Includes exposure to industry practices through interaction with companies or professionals. Prerequisite: CHE 490.

CHE 497 Professional Training in Chemical Engineering (0-6-2). Provides opportunities for the application of engineering knowledge and skills to actual

problems in a real-life work setting. Enhances learning and soft skills through practical experience. Reinforces objective-setting and performance measurement through a structured reporting process. Requires a minimum of 16 weeks of approved professional experience of on-the-job training. Graded as Pass/No Pass. Prerequisites: ENG 204, junior standing and approval of internship coordinator.

CMP Computer Science

CMP 120 Programming I (3-2-3). Provides an overview of computer architecture and programming. Examines elements of a C++ program, statements and expressions, data types, relational and logical operators, conditional and iterative control structures. Examines, file I/O, declaration and initialization of arrays and strings, pointers and function arguments. Covers program design and testing, and modular programming. Includes laboratory and programming assignments. Prerequisite: NGN 110 or sophomore standing. Lab/Tech fee rate A applies.

CMP 213 Discrete Structures (3-0-3). (Equivalent to MTH 213). Covers propositional and predicate calculus, sets, major classes of functions and related algorithms, asymptotic analysis of functions, principle of mathematical induction, proof techniques, recursive definitions, counting, relations, graphs and trees. Prerequisite: MTH 103.

CMP 220 Programming II (3-2-3). Covers object-oriented programming concepts: constructors, destructors, objects, classes, functions and attributes, operator overloading and overriding, inheritance and polymorphism. Explores abstraction principles (interfaces, information hiding, encapsulation), templates, exception handling, I/O streams and advanced pointers. Uses the C++ programming language in laboratory work. Prerequisite: CMP 120. Lab/Tech fee rate A applies.

CMP 305 Data Structures and Algorithms (3-2-3). Covers the design, analysis and implementation of abstract data types and related algorithms to solve computing problems efficiently. Includes fundamental data structures such as arrays, linked lists, stacks and queues, as well as advanced data structures such as trees, hash tables, heaps and graphs. Studies algorithms for manipulating these data structures, recursive programming, searching and sorting. Laboratory work includes substantial programming assignments. Prerequisite: CMP 220; prerequisite/concurrent: CMP 213 or MTH 213. Lab/Tech fee rate A applies.

CMP 310 Operating Systems (3-0-3). Introduces operating systems, process management, process scheduling, interprocess communications, semaphores and monitors, memory management techniques, virtual memory, I/O management, deadlock avoidance, file system design and security issues. Employs examples of commonly used operating systems (e.g., Windows and Linux). Prerequisites: CMP 305, and COE 241 or COE 251.

CMP 320 Database Systems (3-2-3). Introduces the basic principles of database management systems; data models, including conceptual and logical models; translation between data models; query languages; normalization of relations and database application development. Prerequisites: CMP 120, and CMP 213 or MTH 213. Lab/Tech fee rate A applies.

CMP 321 Programming Languages (3-2-3). Introduces the fundamental principles and techniques in the design and implementation of modern programming languages. Covers key topics such as syntax and semantics, binding and scope, data types, control structures and expressions. Discusses different programming paradigms, such as imperative, functional, logic and object-oriented. Prerequisites: CMP 305; prerequisite/concurrent: CMP 358L or COE 312 or COE 421L. Lab/Tech fee rate A applies.

CMP 333 Artificial Intelligence (3-0-3). Introduces the fundamental concepts and techniques of artificial intelligence. Studies the structure and components of intelligent agents and systems. Includes problem-solving methods, heuristic search, knowledge representations and logical reasoning systems. Examines selected topics such as planning and approximate reasoning, as well as case studies of AI in the real world. Prerequisite: CMP 305.

CMP 340 Design and Analysis of Algorithms (3-0-3). Covers algorithmic analysis; algorithmic strategies; advanced searching and sorting algorithms; hashing, graph and spanning trees algorithms; topological sort; pattern matching; numerical algorithms; matrix operations; complexity classes; approximation algorithms; and basic computability theory. Prerequisites: CMP 305, and NGN 211 or STA 201.

CMP 357 Web Development and Programming (2-3-3). Introduces modern web development, covering the design and implementation of static and dynamic web-based graphical user interfaces using HTML, CSS and JavaScript. Covers the principles of relational database design, including entity-relationship models, schema creation and query writing. Explores the development of server-side web applications using modern web frameworks and their integration into full-stack applications. Prerequisite: CMP 305. Lab/Tech fee rate A applies.

CMP 358L Java Programming Laboratory (0-3-1). Introduces the Java programming language and its applications. Covers essential Java programming elements, including syntax, data types, control structures and exceptions. Emphasizes object-oriented design in Java, including classes and class hierarchies, interfaces and software patterns. Covers multi-threading and its use in Java programs. Prerequisite: CMP 305. Lab/Tech fee rate A applies.

CMP 404 Cloud Computing (3-0-3). Explores core concepts of the cloud computing paradigm, technology and software development. Covers cloud delivery models, cloud deployment models (private, public, community and hybrid), cloud computing architecture, virtualization, web services technologies, cloud services development and deployment, resource management, and data storage, access, partitioning and synchronization. Prerequisite: CMP 310.

CMP 416 Internet and Network Computing (3-2-3). Covers the design of Internet-based clients and servers; multi-tiered applications; TCP and UDP communications; and Internet technology standards including HTML5, CSS and Javascript. Uses state-of-the-art Web development frameworks to build Internet-based applications. Prerequisites: CMP 320 and COE 371; prerequisite/concurrent: CMP 310. Lab/Tech fee rate A applies.

CMP 418 Multicore Computing (3-0-3). Covers models of parallel computation and software development on multicore systems. Examines problem decomposition patterns including divide-and-conquer, geometric decomposition, task parallelism and pipelining. Covers program structure patterns such as master-worker, map-reduce and fork-join. Provides hands-on experience with high-performance multicore and many-core platforms. Examines state-of-the-art software tools for both central processing unit and graphic processing unit architectures. Prerequisite: CMP 310.

CMP 430 Computer Graphics (3-0-3). Introduces the fundamental principles and techniques of computer graphics using state-of-the-art tools. Covers viewing and ray tracing, imaging and displays, rasterization, antialiasing, intersection and clipping, triangle meshes, spline curves and surfaces, 2D and 3D transformations and projections, illumination and shading, geometric modelling, animation. Addresses topics such as human visual perception, hardware and software acceleration. Prerequisites: CMP 305 and MTH 221.

CMP 445 Software Requirements Engineering (3-0-3). Covers the principles, methods and techniques used in software requirements engineering. Focuses on eliciting, analyzing, specifying, validating

and managing software requirements for complex systems. Includes a solid understanding of stakeholder identification and analysis. Emphasizes modeling and documentation of both functional and non-functional requirements, as well as the use of use cases and scenario analysis to capture system behavior. Explores requirements validation, verification, traceability and management throughout the software development lifecycle. Prerequisite: CMP 305.

CMP 450 Object-Oriented Software Engineering (3-0-3). Explores object-oriented analysis and design. Covers topics in object-oriented analysis and design: object-oriented requirements capturing, modeling and refinement. Includes object-oriented design, design patterns and object-oriented testing. Requires completion of a substantial object-oriented software project. Prerequisite: CMP 305.

CMP 456 Software Testing (3-0-3). Provides an overview of software testing and applicable techniques. Covers black-box and white-box testing, code-based and model-based mutation testing, conformance testing, and regression testing. Introduces the application of reinforcement learning, genetic algorithms and simulated annealing in software testing. Prerequisite: CMP 305.

CMP 461 Intelligent Autonomous Robotics (3-0-3). Introduces the fundamental concepts, principles and algorithms for perception, computation and action in the physical world. Studies robot tasks and architectures, sensors and vision, localization, mapping, manipulation, motion planning and navigation. Examines selected advanced topics such as geometric reasoning, autonomous exploration, as well as case studies such as autonomous vehicles for smart cities. Prerequisite: CMP 305.

CMP 466 Machine Learning and Data Mining (3-0-3). Introduces principles of machine learning and data mining methods for the discovery of knowledge from datasets. Covers key topics in machine learning and data mining including data preparation, dimensionality reduction, visualization, supervised and unsupervised learning, and association mining. Focuses on practical applications using state-of-the-art software tools. Prerequisites: CMP 305, MTH 221, and NGN 211 or QBA 201 or STA 201 or STA 202.

CMP 469 Intelligent Recommendation Systems (3-0-3). Introduces the principles of recommendation systems, covering both theoretical foundations and practical implementations. Covers user-based, item-based, content-based, collaborative filtering, singular value decomposition (SVD) and matrix factorization algorithms. Explores explicit and implicit feedback mechanisms. Involves project-based applications of recommendation algorithms to diverse datasets and real-world scenarios. Prerequisites: CMP 305, MTH 221, and STA 201 or STA 202 or QBA 201 or NGN 211.

CMP 490 Project in Computer Science I (1-2-1). Covers the design process through an open-ended, team-based project of disciplinary relevance. Applies discipline-specific methods and tools to problem identification, definition of objectives and constraints, evaluation of alternatives, and development of a preliminary design. Addresses factors such as sustainability, safety, ethics, economics, societal impact and standards in the design process. Emphasizes the aspects of innovation, entrepreneurship and intellectual property. Develops professional teamwork and communication skills. Not open to computer engineering students. Prerequisites: ENG 204 and senior standing; prerequisites/concurrent: IEN 301 and COE 420.

CMP 491 Project in Computer Science II (1-3-2). Continues the work of CMP 490. Emphasizes the application of design principles to solve real-world problems. Includes exposure to industry practices through interaction with companies or professionals. Prerequisite: CMP 490.

CMP 497 Professional Training in Computer Science (0-6-2). Provides opportunities for the application of computer science knowledge and skills to actual problems in a real-life work setting. Enhances learning and soft skills through practical experience. Reinforces objective-setting and performance measurement through a structured reporting process. Requires a minimum of 16 weeks of approved professional experience of on-the-job training. Graded as Pass/No Pass. Prerequisites: ENG 204, junior standing and approval of internship coordinator.

COE Computer Engineering

COE 221 Digital Systems (3-3-4). Covers number systems, representation of information, introduction to Boolean algebra, and combinational and sequential circuits analysis and design. Prerequisites: PHY 102 and PHY 102L, or CMP 120. Lab/Tech fee rate A applies.

COE 241 Microcontrollers: Programming and Interfacing (3-3-4). Examines the basic hardware building blocks, addressing modes and instruction sets of microprocessors and microcontrollers. Introduces selection criteria for microcontrollers. Covers digital and analog input/output, timers, interrupts and serial communications, programming and interfacing. Prerequisites: CMP 120 or MCE 226L, COE 221, and ELE 211 or ELE 225. Lab/Tech fee rate B applies.

COE 242 Microcontrollers and Embedded Systems (3-3-4). Examines the basic hardware building blocks, addressing modes, and instruction sets of microcontrollers. Covers digital and analog input/output, timers, interrupts and serial communications, assembly, and high-level programming and interfacing. Introduces application development using microcontrollers and embedded microprocessors. Not open to computer engineering students. Prerequisites: CMP 120, COE 221 and ELE 211. Lab/Tech fee rate B applies.

COE 251 Introduction to Computer Systems (3-3-4). Examines hardware and software model of microprocessors; programming of microprocessors; memory systems, memory interface and memory access (DMA); input/output programming and interface; and design of microprocessors-based systems. Not open to computer engineering students. Prerequisites: CMP 120 or MCE 226L, and COE 221. Lab/Tech fee rate B applies.

COE 312 Software Design for Engineers (2-3-3). Covers software design patterns. Considers advanced Java programming, including multi-threading, collection, I/O and communication libraries. Addresses the use of Java to implement wired and wireless communication interfaces, including reading and writing, serial, parallel, synchronous and asynchronous steams and sockets. Focuses on the design of message and event-based software architectures. Includes course project. Prerequisites: CMP 220, and COE 241 or COE 251. Lab/Tech fee rate B applies.

COE 341 Computer Architecture and Organization (3-0-3). Covers CPU organization and microarchitectural level design; RISC design principles; memory, peripheral devices and input/output busses; DSP processor architectures; and introduction to parallel computing. Prerequisite: COE 241 or COE 251.

COE 371 Computer Networks (3-2-3). Provides an overview of computer networks and the Internet. Covers application layer protocols, transport layer services, principles of flow and congestion control, network layer addressing, forwarding and routing, link layer protocols, addressing and multiple access. Introduces concepts in computer networks security and network delay performance. Prerequisites: COE 221, CMP 305 and MTH 104. Lab/Tech fee rate B applies.

COE 375 Modeling and Simulation of Stochastic Systems (3-0-3). Examines concepts of probability and stochastic processes and their applications to computer engineering problems. Includes the following topics: random variables,

random processes, queuing models, discrete-event and discrete-time simulation and its application to computer systems and networks performance. Emphasizes the use of computer programs and industry-standard simulation packages to model stochastic computer systems. Not open to students who have completed ELE 360. Prerequisite: NGN 211 or STA 201; prerequisite/concurrent: COE 371.

COE 411 Embedded and Cyber Physical Systems (3-3-4). Introduces embedded and cyber physical systems computing platforms, and their building blocks. Covers interfacing and programming sensors and actuators, process-controlled and time-controlled interrupt handling. Explores communication methods. Covers Internet of Things (IoT) applications. Examines embedded and cyber physical systems design requirements and specifications. Reviews embedded and cyber physical systems emerging applications through a class project. Prerequisite: COE 241; prerequisite/concurrent: ELE 340. Lab/Tech fee rate B applies.

COE 414 Telecommunications Networks Engineering (3-0-3). Examines current topics in telecommunications networks. Covers network elements functions, access, metropolitan and transport network architectures, bandwidth considerations and multiplexing techniques, current engineering practices in designing and optimizing telecommunications networks. Prerequisite: ELE 320.

COE 420 Software Engineering (3-1-3). Introduces the basic principles and practices of software engineering. Emphasizes the different phases of the software development process and quality issues. Includes the following topics: software life cycle models; general design, implementation and testing issues; specification and design methodologies; model-based approaches to software design; project management; and the use of various design and development tools. Prerequisite: CMP 305. Lab/Tech fee rate A applies.

COE 421L Computer Systems Engineering Laboratory (0-3-1). Covers the main activities that make up the development lifecycle of a complex computer system including requirement engineering, architectural design, design patterns, configuration management, and verification and validation. Follows a project-based learning approach to offer a hands-on experience in building computer systems using contemporary software engineering methods and tools. Prerequisite/concurrent: CMP 310. Lab/Tech fee rate B applies.

COE 424 Advanced Digital System Design (3-2-3). Covers advanced and structured digital design techniques. Introduces hardware description languages (HDL) and programmable logic devices (PLD) implementations. Discusses fundamentals of FPGA-based acceleration techniques. Presents logic-based testing methods. Prerequisite/concurrent: COE 341. Lab/Tech fee rate B applies.

COE 425 Modern Computer Organizations (3-0-3). Covers performance measures, RISC processors, datapath and control units design, memory hierarchy, pipelining, I/O systems and multiprocessors. Prerequisite: COE 341.

COE 428 VLSI Design (3-0-3). Covers CMOS technology, layout rules and techniques, CMOS logic and circuit design, circuit characterization and performance estimation, and design methodologies and tools. Prerequisites: COE 221 and ELE 241.

COE 431 Industrial Cyber Physical Systems (2-3-3). Covers the conceptual model and layers of cyber physical systems (CPS); the industrial applications in CPS of microprocessor-based data acquisition units and programmable logic controllers; web-based monitoring and control of industrial plants; and recent developments in industrial automation. Includes class projects. Prerequisite: COE 411. Lab/Tech fee rate B applies.

COE 434 Wireless and Mobile Networks (3-0-3). Covers wireless communications and networks, location management, routing in ad hoc wireless network, file systems issues and caching strategies. Prerequisite: COE 371.

COE 444 Computer Security (3-0-3). Covers a broad variety of topics in computer security. Includes the following topics: authentication and authorization, introduction and application of cryptography, social engineering attacks, physical security, network security, application security (web, e-mail), wireless security, operating system security, intrusion detection systems and firewalls, program security, security management, block chain technologies, and ethical and legal issues in computer security. Prerequisite: COE 371.

COE 457 Internet and Internet of Things (IoT) Programming (3-1-3). Focuses on Internet and Internet of Things (IoT) programming. Topics include programming using Internet and IoT protocols, advanced JavaScript programming, NSQL databases, cross-platform web-application development, and architectures for Internet of Things. Prerequisites: COE 371 and CMP 310. Lab/Tech fee rate A applies.

COE 476 Neural Networks and Deep Learning (3-0-3). Covers tensors, neural network modelling, gradient descent optimization and loss functions, feature engineering, and evaluation of neural networks. Focusses on various types of neural networks including feedforward networks, auto-encoders, convolutional neural networks and recurrent neural networks. Discusses topics in generative deep learning. Prerequisites: CMP 305 and MTH 221.

COE 486 Computer Vision (3-0-3). Provides a comprehensive introduction to computer vision, imparting students with a deep understanding of fundamental concepts and practical skills for real-world applications. Includes image formation, filtering, feature extraction and matching, and advanced concepts such as 3D reconstruction, optical flow, image classification, detection, segmentation and tracking. Explores convolutional and recurrent neural networks and their applications in computer vision. Prerequisites: CMP 220 and MTH 221.

COE 487 Virtual and Augmented Reality (3-0-3). Focuses on hardware and software aspects of virtual reality (VR) and augmented reality (AR) systems. Addresses the integration of AR and VR technologies in the development of computer games and other engineering applications. Covers 3D modeling, inertial measurement units (IMUs) and sensors, scene management, user interactivity, performance evaluation, single and multiplayer games, and use of patterns in game development. Prerequisites: CMP 305 and MTH 221. Lab/Tech fee rate A applies.

COE 490 Design Project I (1-2-1). Covers the engineering design process through an open-ended, team-based project of disciplinary relevance. Applies discipline-specific methods and tools to problem identification, definition of objectives and constraints, evaluation of alternatives, and development of a preliminary design. Addresses factors such as sustainability, safety, ethics, economics, societal impact and standards in the design process. Emphasizes the aspects of innovation, entrepreneurship and intellectual property. Develops professional teamwork and communication skills. Not open to computer science students. Prerequisites: COE 371, ENG 204 and senior standing; prerequisites/concurrent: IEN 301, and COE 420 or COE 421L.

COE 491 Design Project II (1-3-2). Continues the work of COE 490. Emphasizes the application of engineering principles to solve real-world problems. Includes exposure to industry practices through interaction with companies or professionals. Prerequisite: COE 490.

COE 497 Professional Training in Computer Engineering (0-6-2). Provides opportunities for the application of computer engineering knowledge and skills to actual problems in a real-life work setting. Enhances learning and soft skills through practical experience. Reinforces objective-setting and performance

measurement through a structured reporting process. Requires a minimum of 16 weeks of approved professional experience of on-the-job training. Graded as Pass/No Pass. Prerequisites: ENG 204, junior standing and approval of internship coordinator.

CVE Civil Engineering

CVE 111 Fundamentals of Engineering Graphics (0-3-1). Introduces graphical communication including lettering, drawing equipment and techniques. Covers orthographic projections, sections and technical sketching. Uses isometric and oblique drawings for communication and documentation of engineering design. Employs computer-aided design tools. Lab/Tech fee rate A applies.

CVE 202 Construction Materials Laboratory (0-3-1). Focuses on the application of basic measurement techniques and instrumentation to the experimental investigation of construction materials: aggregate, bitumen, pavement materials, asphalt mixes, cement, concrete materials, concrete mixes, mild and high tensile steel testing, non-destructive testing. Includes timber and metals tests. Requires written reports covering the planning, execution, results and conclusions of the investigation. Emphasizes teamwork. Prerequisite/concurrent: CVE 224. Lab/Tech fee rate B applies.

CVE 222 Statics and Dynamics (3-1-3). Covers fundamental concepts and principles of mechanics, vectors and force systems; free-body-diagram; equilibrium principles of particles and rigid bodies; analysis of structures; shear and bending moment; center of gravity, centroids, area and mass moments of inertia; friction; kinetics of rigid bodies; Single-Degree-Of-Freedom (SDOF) vibrations. Prerequisites: PHY 101 and PHY 101L.

CVE 223 Mechanics of Materials (3-1-3). (Equivalent to 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 222 or MCE 220 or MCE 224.

CVE 224 Construction Materials and Quality Control (3-0-3). Examines properties of construction materials (aggregate, Portland cement, admixtures, concrete and bituminous materials used in construction and maintenance of structures, roads and pavements); design of concrete mixes including admixtures; concrete trial mixes on construction site; concrete curing methods; concrete strength and durability; design of paving mixtures; and production, specifications, tests and quality control of various construction materials. Prerequisites: CVE 223, CHM 101 and CHM 101L; prerequisite/concurrent: CVE 202.

CVE 232 Geology (2-1-2). Covers the nature and structure of earth, formation of rocks, chemical and physical properties of minerals, weathering, volcanoes, earthquakes and tectonic movements, types of mountains and their formation, groundwater and surface water processes and contamination, rock mass instabilities, and global climate change. Prerequisite: NGN 110. Lab/Tech fee rate B applies.

CVE 240 Fluid Mechanics (3-2-3). Examines foundational principles of fluid mechanics by emphasizing fluid properties, pressure measurement, hydrostatic forces and the stability of floating bodies. Covers major topics such as fluid kinematics, velocity and acceleration fields, the application of the Euler equation, laminar and turbulent flow regimes, dimensional analysis, dynamic similitude and boundary layer development. Applies Reynolds Transport Theorem to derive the integral conservation equations for continuity, momentum and energy. Uses these governing equations to analyze pipe systems, including series and parallel configurations and methods of computing energy losses. Prerequisites: CVE 222 and MTH 104. Lab/Tech fee rate B applies.

CVE 243 Fundamentals of Geomatics (3-2-3). Covers basic geomatics principles and applications, with a focus on data acquisition, processing and analysis. Includes measurement techniques, error theory, traversing, topographic mapping, area and earthwork calculations, spatial datum and reference systems. Introduces state-of-the-art geospatial technologies and data analysis techniques, including GNSS, remote sensing, LiDAR mapping, GIS and GeoAI. Provides hands-on skills in using geomatics tools and applying spatial data analysis techniques to real-world civil engineering problems through field and laboratory exercises. Prerequisites: MTH 104 and NGN 112. Lab/Tech fee rate A applies.

CVE 263 Urban Transportation Planning (3-0-3). Examines urban transportation system planning techniques: data collection, trip generation, trip distribution, factors underlying the choice of mode, traffic assignment, modeling and evaluation techniques, use of planning software packages, development of alternatives, and evaluation of civil engineering projects. Introduces Intelligent Transportation Systems (ITS). Prerequisites: CVE 243 and NGN 211.

CVE 267 Civil Engineering Economic Analysis (3-0-3). Covers economic analysis and evaluation of civil engineering proposals utilizing time-value and related factors, time value of money, worth of investments and economic evaluation of alternative choices, replacement and retention decisions, selection from independent projects, inflation, cost estimating fundamentals, parametric cost estimating, probabilistic cost estimating, depreciation, breakeven analysis and benefit cost analysis. Prerequisite: NGN 211.

CVE 301 Theory of Structures (3-0-3). Covers stability and determinacy of structures; force calculation in trusses; axial load, shear and bending moment diagrams for beams and frames; approximate analysis of indeterminate frames; analysis of cables and arches; deflection calculations; influence lines for determinate structures; and analysis of statically indeterminate structures using classical methods. Uses commercial software for structural analysis. Prerequisite: CVE 223.

CVE 303 Geotechnical Engineering Laboratory (0-3-1). Includes experiments in soil mechanics. Laboratory experiments cover geotechnical test equipment and techniques. Includes the applications of testing principles to the measurement of fundamental aspects of soil behavior from classification to engineering properties. Emphasizes rigorous techniques to measure mechanical behavior under various boundary conditions. Provides exposure to error estimation. Utilizes standard test methods and equipment to assess physical, mechanical, chemical and hydraulic properties of soils for application in civil engineering design. Includes laboratory work on classification and engineering tests on intact and weathered rock. Prerequisite: NGN 211; prerequisite/concurrent: CVE 331. Lab/Tech fee rate B applies.

CVE 312 Structural Steel Design (3-0-3). Covers loads on structures, design criteria and philosophies, and analysis and design of structural steel elements found in buildings and bridges including tension members, compression members, beams, columns, beam columns and connections. Requires a design project and use of computer software. Prerequisite: CVE 301.

CVE 313 Reinforced Concrete Design (3-0-3). Covers loads on structures; design criteria and factors of safety; analysis and design of reinforced concrete beams, short columns, one-way slabs and footings using ultimate strength method; and bond development of reinforcement. Requires a design project and use of computer software. Prerequisites: CVE 224 and CVE 301.

CVE 325 Numerical Methods in Engineering (3-1-3). (Equivalent to MCE 325). Covers basic concepts of computational methods; numerical solution of non-linear equations; iterative methods for solving systems of linear

algebraic equations; numerical differentiation and integration; interpolation; and curve fitting. Includes numerical solutions of ordinary differential equations. Introduces various probability distribution functions, and covers uncertainty and risk analysis in engineering applications. Includes applications of computational methods using computers. Prerequisites: NGN 112, NGN 211 and MTH 225. Lab/Tech fee rate A applies.

CVE 331 Geotechnical Engineering Principles (3-0-3). Studies physical properties of soils, classification systems, soil structure and soil water systems, effective stress principle and stresses in soil due to applied loads. Includes the following topics: compressibility, consolidation and swell; permeability and seepage analysis; soil compaction; stress-strain-shear strength relationships of soils; failure criteria; direct and triaxial shear testing; and soils used in construction. Introduces lateral earth pressures. Uses computer software for geotechnical analysis. Prerequisites: CVE 223 and CVE 232; prerequisite/concurrent: CVE 303.

CVE 333 Geotechnical Engineering Design (3-0-3). Covers subsurface exploration and site investigation and evaluation; bearing capacity of shallow foundations in different types of soils; settlement analysis (consolidation and immediate); design of shallow foundations including footings and raftings; design of deep foundations including driven piles, shafts and drilled piers; pile load tests; end bearing and friction of deep foundations under axial loading; settlement of piles; bearing capacity and settlement of pile groups; piles subjected to lateral loading and moments; and design of pile foundations. Introduces design of retaining walls. Requires extensive use of computer-aided design in team projects. Prerequisite: CVE 331.

CVE 341 Water Resources Engineering (3-0-3). Introduces flow of water through pipes and channels, over the ground surface, and through the subsurface. Covers incompressible flow in pipes, methods of energy loss computations, pumps, steady flow in pipe networks, and design of pipe networks using computer applications. Includes open channel hydraulics, design of water supply canals, bridge and culvert hydraulics, and open channel flow modeling. Introduces surface hydrology including runoff modeling. Covers subsurface flow and wells hydraulics. Includes team projects, and analysis and design using computer software. Prerequisite: CVE 240.

CVE 352 Environmental Engineering (3-2-3). Introduces environmental engineering and sustainability. Covers materials balance, reaction kinetics and reactor theory. Introduces water quality parameters, modeling and source assessment. Covers planning and design of water and wastewater treatment processes, and sustainable solid waste planning and management. Introduces laboratory assessments of water quality parameters and treatment methods. Prerequisites: CHM 101 and CHM 101L, and CVE 240 or MCE 240 or CHE 300. Lab/Tech fee rate B applies.

CVE 363 Highway Design (3-0-3). Explores driver and vehicle characteristics, stopping and passing sight distances, cross section elements, vertical and horizontal alignment, intersections and interchanges, surface drainage, types of pavements, and principles, theoretical concepts and design of flexible and rigid pavements. Prerequisite: CVE 263.

CVE 367 Project Estimating, Planning and Control (3-0-3). Covers the application of cost estimating and planning techniques for construction projects. Introduces construction project management; quantity surveying; labor, material and equipment costing; indirect and general overhead costs; preparation of approximate and definitive estimates; work breakdown structures; project scheduling; network modeling; critical path method; program evaluation and review techniques; time-cost tradeoff; earned value; project controls and project closeout. Prerequisite: CVE 267.

CVE 410 Computer Methods in Structural Analysis (3-0-3). Introduces matrix algebra, degrees of freedom and system coordinates. Explores virtual work method, stiffness and flexibility methods, matrix formulation of the stiffness and flexibility methods, direct stiffness method, introduction to finite element method, computer analysis of 2D and 3D framed structures. Emphasizes team-based learning through projects. Prerequisites: CVE 301, and MTH 221 or MTH 225.

CVE 411 Structural Concrete Design (3-0-3). Introduces flooring and structural systems. Covers design of reinforced concrete members including beams subjected to torsion, two-way slabs, column under biaxial bending, slender columns, combined footings and shear walls. Introduces pre-stressed concrete, pre-stress materials and losses. Includes design of pre-stressed beams and computer analysis and design of structures. Emphasizes team-based learning through specific design projects. Prerequisite: CVE 313.

CVE 414 Prestressed Concrete Design (3-0-3). Covers the analysis and design requirements for prestressed concrete members; materials, prestressing systems and methods; prestress losses; flexural design for service stresses at transfer and at service; ultimate flexural and shear strength design; composite construction and secondary moments. Prerequisite: CVE 313.

CVE 441 Coastal Engineering (3-0-3). Covers wave theories and their characteristics; wave transformation (wave refraction, diffraction and reflection); wave forces and concepts and theories of wave structure interactions; water level fluctuations (tides); coastal and ocean structures; design of seawalls, breakwater and shore protection systems; design of selected coastal structures; and hydraulic considerations. Introduces selected coastal engineering problems. Prerequisite: CVE 341.

CVE 442 Design of Earth Retaining Structures (3-0-3). Includes site investigation with emphasis on in-situ testing. Covers interpretation of field and laboratory data; design of retaining structures, braced excavations, sheet-pile walls and reinforced earth structures; and the design of staged construction embankments and slopes. Introduces seismic behavior of ground and geotechnical earthquake engineering. Emphasizes design of locally used geotechnical structures. Prerequisite: CVE 331.

CVE 446 Geotechnical Dam Engineering (3-0-3). Examines regional geoscience and seismotectonic investigations; selection type of dam; related geophysical subsurface exploration seepage in composite sections, anisotropic and multi-layered materials; dams stability analysis; design of dam foundations; foundation treatment; and grouting in the ground. Introduces earthquake analysis and design of earth and rock-fill dams. Special considerations include liquefaction problems, sinkholes, land subsidence, foundation defects and dispersive soils. Covers monitoring and staged construction and evaluates the ecological and geo-environmental effect of the dam construction. Prerequisite/concurrent: CVE 331.

CVE 451 Urban Water Infrastructure Management (3-0-3). Introduces drinking water, wastewater and stormwater infrastructures. Includes water quality management of water infrastructures, waste solids handling and disposal practices and integrity of water infrastructures, design approach and construction of infrastructure, and operations, maintenance and renewal of water, sewer and stormwater systems. Introduces financial management, asset management, risk management and the use of information technology in water management. Prerequisites/concurrent: CVE 341 and CVE 352.

CVE 452 Water Distribution and Wastewater Collection Systems (3-0-3). Introduces water demand, water supply sources, water use trends and forecasting. Includes fundamentals of surface water and groundwater collection and transportation; design of wells and

water distribution systems; estimation of industrial, domestic and fire demands; water meters; and leak detection. Identifies processes for sustainable water use and economics of water supply. Covers wastewater generation, construction and maintenance of sanitary sewer and plumbing systems in buildings. Prerequisite/concurrent: CVE 341.

CVE 456 Traffic Engineering (3-0-3). Explores characteristics of road users and the characteristics of the traffic stream: speed-flow-density, traffic volume, traffic accidents, travel time and delay, parking, capacity and level of service of freeways, signalized intersections and at-grade intersection design. Covers transportation models. Prerequisite: CVE 263.

CVE 460 Transportation Systems Management (3-0-3). Introduces fundamentals of managing components/processes/impacts of transport systems: travel demand and travel time impacts and management, environmental impacts (air quality, noise, water) and management, safety systems management, public health impacts and management, transport system operations and control, transportation asset management, and pavement management systems. Covers applicable metrics, performance measures and evaluation methods with a focus on sustainability. Prerequisite: CVE 263.

CVE 461 Public Transportation Systems (3-0-3). Focuses on transit systems planning methods in urban areas. Covers analysis, evaluation and selection of transit modes with focus on the twin themes of sustainability and innovation. Examines operational issues regarding lines, stops, networks, stations, vehicles, transit units, and fleet size. Prerequisite: CVE 263.

CVE 463 Construction Management (3-0-3). Examines management in the construction industry; construction delivery systems; management organizations; construction contracts; preconstruction planning and scheduling; bidding and award; contract administration and control; managing submittals, drawings, communications, progress payments, cash flow and site materials; and progress monitoring and control. Introduces construction quality and safety management. Prerequisite: CVE 367.

CVE 467 Building Construction Materials and Methods (3-0-3). Covers traditional and alternative building systems, the principles, materials, methods, codes and standards, and discusses their advantages and limitations. Encompasses aspects of site preparation, excavation and formwork, foundation choices, different elements of frame construction, scaffolding, thermal and moisture protection, electrical wiring, heating ventilation and air-conditioning (HVAC), plumbing, roofing, cladding systems, and external and internal finishes. Prerequisites: CVE 111 and CVE 267.

CVE 472 Geographic Information Systems (3-0-3). Introduces the concept and use of Geographic Information Systems (GIS). Covers assorted topics in GIS including map generation and analysis, vector and raster GIS, spatial databases and query, spatial data display, simple spatial analysis, data in GIS, GIS capabilities, GIS data structures and sources of data, GIS tools, GIS analysis, GIS applications and GIS visualization. Prerequisites: CVE 243 and senior standing.

CVE 478 Sustainable Concrete Design (3-0-3). Explores properties, design and applications of sustainable concretes and their use in innovative design solutions. Covers design of green concrete mixes based on current codes and specifications with emphasis on carbon emission reduction. Evaluates the properties of sustainable concrete and its use in concrete production. Employs the application of advanced materials and methods in design of sustainable concrete. Applies LEED and Estidama ratings for green buildings. Uses software to evaluate service life and cost of sustainable concrete. Prerequisites: CVE 202 and CVE 224.

CVE 490 Civil Engineering Design Project I (1-2-1). Covers the engineering design process through an open-ended, team-based project of disciplinary relevance. Applies discipline-specific methods and tools to problem identification, definition of objectives and constraints, evaluation of alternatives, and development of a preliminary design. Addresses factors such as sustainability, safety, ethics, economics, societal impact and standards in the design process. Emphasizes the aspects of innovation, entrepreneurship and intellectual property. Develops professional teamwork and communication skills. Prerequisites: ENG 204 and senior standing; prerequisite/concurrent: IEN 301.

CVE 491 Civil Engineering Design Project II (1-3-2). Continues the work of CVE 490. Emphasizes the application of engineering principles to solve real-world problems. Includes exposure to industry practices through interaction with companies or professionals. Prerequisite: CVE 490.

CVE 497 Professional Training in Civil Engineering (0-6-2). Provides opportunities for the application of engineering knowledge and skills to actual problems in a real-life work setting. Enhances learning and soft skills through practical experience. Reinforces objective-setting and performance measurement through a structured reporting process. Requires a minimum of 16 weeks of approved professional experience of on-the-job training. Graded as Pass/No pass. Prerequisites: ENG 204, junior standing and approval of internship coordinator.

EGM Engineering Management

EGM 361 Management for Engineers (3-0-3). Focuses on engineers as managers. Includes the following topics: nature and functions of organizations; the tools of engineering management; engineering organizational models, including cluster and matrix organization; leadership; teamwork and creativity; personnel management; finance; communication skills; and ethical and professional standards. Introduces total quality management. Includes case studies. Prerequisite: sophomore II standing.

EGM 362 Engineering Project Management (3-0-3). Covers projects in engineering organizations. Includes the following topics: project initiation; effective project management; project life cycle, planning and scheduling; resourcing; cost estimating; and project monitoring and control. Introduces computer packages. Includes case studies. Prerequisite: sophomore II standing.

EGM 363 Value Analysis and Engineering (3-0-3). Introduces the principles and practices of cost and value analysis and engineering. Emphasizes methods and tools on product and process cost estimation and reduction. Presents the value methodology process as an organizational creative approach and an effective tool for problem solving, quality assurance and operational excellence. Covers value concept, change management, thinking methodologies, risk management and phases of value engineering. Prerequisite: IEN 301.

EGM 364 Engineering Economy (3-0-3). Explores the economics concepts and theories of planning. Covers the bases and methods of economic analysis of engineering projects and the application of these principles in understanding economic activity of private and public engineering companies at various micro- and macroeconomic levels. Not open to civil engineering students. Prerequisite: sophomore II standing.

ELE Electrical Engineering

ELE 101 Introduction to Electrical Engineering (0-3-1). Provides an overview of the electrical engineering fields and profession. Discusses contemporary and emerging applications and trends. Examines elementary concepts of electric circuits. Explores design of electrical systems. Includes teamwork skills through

a hands-on project. Lab/Tech fee rate B applies.

ELE 211 Electric Circuits I (2-3-3). Examines physical concepts and mathematical analysis of electric circuits. Includes DC, transient and sinusoidal steady state circuit analysis. Covers single phase AC power analysis. Includes laboratory experiments and use of modern software tools. Prerequisites: PHY 102 and PHY 102L. Lab/Tech fee rate B applies.

ELE 212 Electric Circuits II (2-3-3). Covers magnetically coupled inductors and ideal transformers, frequency response analysis, Laplace transform, application of Laplace transform in circuit analysis, two port networks. Introduces three phase circuits. Includes laboratory experiments. Prerequisites: ELE 211 or ELE 225, and MTH 205 or MTH 225. Lab/Tech fee rate B applies.

ELE 225 Electric Circuits and Devices (2-3-3). Covers electrical quantities and variables; circuit principles; signal processing circuits; DC and AC circuit analysis; and diodes, transistors, operational amplifiers and digital devices. Not open to electrical engineering or computer engineering students. Prerequisites: PHY 102 and PHY 102L. Lab/Tech fee rate B applies.

ELE 241 Electronics I (3-0-3). Reviews semiconductor physics. Covers PN junction, diode circuits, special diodes, BJT transistors, MOSFET transistors, transistor biasing, small signal analysis and design of MOSFET amplifiers, and digital electronics. Prerequisite: ELE 211.

ELE 241L Electronics I Laboratory (0-3-1). Laboratory to accompany ELE 241. Not open to electrical engineering students. Prerequisite/concurrent: ELE 241. Lab/Tech fee rate B applies.

ELE 311 Electromagnetics (3-0-3). Addresses vector algebra and vector calculus. Covers topics related to electrostatic and magnetostatic fields, electric and magnetic properties of media, electric boundary value problems, Maxwell's equations, electromagnetic waves and plane wave propagation, Poynting theorem and transmission line theory. Prerequisites: MTH 203, MTH 205 or MTH 225, PHY 102 and PHY 102L.

ELE 320 Signal Processing and Communications (3-0-3). Examines concepts of linear systems and signals and their applications to communications. Covers LTI systems, spectral-domain analysis, Z-transform and digital filters, analog-to-digital conversion, baseband and bandpass communications systems, signal transmission and impairments, and transmission media and link design. Not open to electrical engineering students. Prerequisites: ELE 211 and MTH 205.

ELE 321 Signals and Systems (3-0-3). Covers classification and manipulation of continuous-time and discrete-time signals, linear time invariant system modeling, convolution of discrete-time and continuous signals, Fourier representation of signals (Fourier series, Fourier transform and discrete-time Fourier transform), applications of Fourier representations in signals and systems, and the Z-transform and analysis of discrete-time systems. Prerequisite: ELE 212.

ELE 324 Digital Signal Processing (3-0-3). Covers treatment of sampling/reconstruction, quantization, discrete-time signals and systems, digital filtering, Z-transforms, transfer functions, digital filter realizations, discrete Fourier transform (DFT) and fast Fourier transform (FFT), finite impulse response (FIR) and infinite impulse response (IIR) filter design, and digital signal processing (DSP) applications. Prerequisite: ELE 321.

ELE 332L Measurements and Instrumentation Laboratory (0-3-1). Includes error analysis, linear displacement transducers, strain gauge, rotational speed measurement, capacitive and inductive transducers, temperature measurement, measurement of pressure and flow, and ultrasonic measurement systems. Prerequisite: ELE 341. Lab/Tech fee rate B applies.

ELE 340 Digital Electronics (3-1-3). Covers operational amplifiers and their applications, Darlington Pair amplifiers, data conversion circuits, timing and clock circuits, CMOS logic gates and semiconductor memory. Introduces BiCMOS technology. Not open to electrical engineering students. Prerequisites: ELE 241 and COE 221. Lab/Tech fee rate B applies.

ELE 341 Electronics II (3-0-3). Covers differential pair, operational amplifiers, power amplifiers, frequency response characteristics of amplifiers, feedback and stability, active filters, digital to analog conversion (D/A) and analog to digital conversion (A/D) circuits. Prerequisite: ELE 241; prerequisite/concurrent: ELE 342L.

ELE 342L Analog Electronics Laboratory (0-3-1). Introduces electronic printed circuit board manufacturing, assembly and testing. Covers the design and testing of amplifiers, differential pair circuits, operational amplifier systems and mixed signals circuits. Prerequisite/concurrent: ELE 341 or ISM 243. Lab/Tech fee rate B applies.

ELE 352 Electric Machines (3-0-3). Covers magnetic circuits, single phase transformer and equivalent circuit, autotransformer, basic concepts of electromechanical energy conversion, and DC and AC machines modeling and steady-state analysis. Prerequisite: ELE 212.

ELE 353 Control Systems I (3-0-3). (Equivalent to MCE 410). Examines mathematical models of systems, feedback control system characteristics, transient response analysis, performance and stability of feedback control systems, root locus analysis, frequency response analysis and design of feedback control systems. Prerequisite: ELE 212 or ISM 361.

ELE 353L Control Systems I Laboratory (0-3-1). Laboratory to accompany ELE 353. Prerequisite: ELE 353. Lab/Tech fee rate B applies.

ELE 360 Probability and Stochastic Processes for Electrical Engineers (3-0-3). Covers concepts of probability theory, random variables, stochastic processes and queuing systems emphasizing their applications in electrical engineering. Investigates electrical engineering systems and applications as well as networks performance via discrete-event simulation. Not open to students who have completed COE 375. Prerequisites: NGN 211 or STA 201, and ELE 320 or MTH 312 or prerequisite/concurrent: ELE 321 or ISM 351.

ELE 361 Communications (3-0-3). Covers signals and systems concepts, communication systems and signal transmission through linear systems; continuous wave modulation schemes including amplitude modulation (AM), frequency modulation (FM) and phase modulation (PM); detection schemes for analog modulation systems and superheterodyne receivers; and noise modeling and performance of various analog modulation schemes in the presence of noise. Includes fundamentals of digital communications. Prerequisite: ELE 321 or ELE 320; prerequisite/concurrent: ELE 360.

ELE 361L Communications Laboratory (0-3-1). Laboratory to accompany ELE 361. Prerequisite: ELE 361. Lab/Tech fee rate B applies.

ELE 371 Power Systems Analysis (3-0-3). Examines power system concepts and per unit quantities; transmission line, transformer and rotating machine modeling; steady-state analysis and power flow; balanced fault analysis; theory of symmetrical components; and unbalanced fault analysis. Prerequisite: ELE 352.

ELE 372L Electric Machines and Power Systems Laboratory (0-3-1). Laboratory to accompany ELE 371. Prerequisite/concurrent: ELE 371. Lab/Tech fee rate B applies.

ELE 432 Medical Instrumentation (3-0-3). (Equivalent to BME 420). Examines principles of medical instrumentation. Covers biomedical sensors and

transducers; temperature, displacement, acoustical, chemical and radiation measurements; bio-potential amplifiers and signal processing; origin of bio-potentials; bio-potential electrodes; measurement of bio-potentials such as ECG, EEG and EMG; blood pressure measurements; and electrical safety. Prerequisite: ELE 341 or ISM 243.

ELE 440 Radio Transceivers Design and Analysis (3-0-3). Covers transmitter and receiver architectures, link budget, noise analysis, linearity analysis, case study (transmitter/ receiver design), linear amplifier design, network analysis, microwave measurements for transmitters' characterization, EDA tools with application to system level design and analysis. Prerequisite: ISM 243 or prerequisite/concurrent: ELE 341.

ELE 441 Microelectronic Devices (3-0-3). Covers conceptual and functional description of the physics, characteristics and fabrication of microelectronic devices as it applies to current and future integrated circuits (IC) and systems. Includes properties and dynamics of semiconductor carriers, P-N junctions, MOSFETs, BJTs and modern FETs. Uses of the state-of-the-art technology CAD/CAE simulation tools, analytical techniques for device design, layout, fabrication and testing. Prerequisite: ELE 341.

ELE 444 Control Systems II (3-0-3). Covers state-space modeling and analysis, controllability, observability, state feedback design and pole placement, dynamic observers, output feedback design and stability analysis. Prerequisite: ELE 353 or MCE 410.

ELE 451 Wireless Communications (3-0-3). Provides an overview of wireless networks, design considerations of cellular systems, frequency reuse, multiple access interference, wireless channel characterization, Rayleigh fading, shadowing, modulation techniques for mobile radio, diversity schemes, multiple access techniques, wireless systems and standards. Prerequisite: ELE 361.

ELE 452 Digital Communications (3-0-3). Covers model of digital communication systems, base-band transmission and line coding techniques, geometric interpretation of signals, band-pass transmission and digital modulation techniques, optimum detection of known signals in AWGN channels, error correcting codes, and modulation and coding trade-off. Prerequisite: ELE 361.

ELE 453 Microwave Engineering (3-0-3). Examines electromagnetic plane waves, microwave transmission lines, Smith charts and stubs, microwave waveguides and components, microwave measurements and applications, and microwave generators. Prerequisite: ELE 311.

ELE 454 Antennas and Wave Propagation (3-0-3). Covers radiation pattern, directivity and gain, half-power beam width and beam efficiency, antenna bandwidth, polarization, input impedance, radiation efficiency, wire antennas, loop antennas, array antennas, aperture antennas and reflector antennas. Prerequisite: ELE 311.

ELE 456 Pattern Recognition (3-0-3). Covers fundamentals of pattern recognition. Explores the following topics: Bayesian decision theory and parameter estimation, maximum likelihood estimation, linear discriminant analysis**,** Fisher discriminant analysis**,** dimensionality reduction via principal component analysis, and neural networks. Includes unsupervised learning and clustering. Prerequisites: CMP 120 or NGN 112, and MTH 221 or MTH 225; prerequisite/concurrent: ELE 360.

ELE 457 Satellite Communications (3-0-3). Focuses on satellite communications. Covers Kepler's laws of orbital motion, satellite's look angles calculations, satellite subsystems and transponders classification, satellite antennas, link budget analysis, multiple access techniques and modulation. Prerequisite: ELE 311; prerequisite/concurrent: ELE 361.

ELE 458 Multimedia Communications and Networking (3-0-3). Provides an overview of multimedia information (text, video, audio and images). Explains the fundamentals of image and video compression. Introduces underlying concepts and principles of multimedia technologies and networking. Demonstrates basic understanding of Quality of Service (QoS) and QoS Routing network protocols, routing, operating systems and human computer interaction. Includes multimedia streaming standards and techniques over wired and wireless networks. Prerequisite/concurrent: ELE 360 or COE 375.

ELE 459 Introduction to Radar Systems (3-0-3). Focuses on radar systems and their applications. Includes the following topics: the radar range equation, detection fundamentals, the radar cross-section, antennas, radar transmitters and receivers, pulse Doppler radars, moving target indictors, tracking radars and synthetic aperture radars. Prerequisite: ELE 311.

ELE 460 Deep Networks in Machine Learning (3-1-3). Explores the following topics: basics of machine learning, neural networks and their programming tools, deep convolutional neural networks, autoencoders, denoising autoecoders, variational autoencoders, recurrent networks, LSTM networks, practical issues in training deep networks and examples of very deep networks. Involves project based practical learning, and hence practical training in the subject. Prerequisites: NGN 112, NGN 211, and MTH 221 or MTH 225. Lab/Tech fee rate B applies.

ELE 470 Autonomous Robotic Systems (3-0-3). Covers mobile robot locomotion, kinematics, perception, localization, path-planning and navigation. Introduces robot swarm concepts, quadcopter drone dynamics and Robot Operating System (ROS) concepts. Prerequisite: ELE 353 or MCE 410.

ELE 471 Digital Control Systems (3-0-3). Covers discrete-time system models, open loop and closed-loop discrete-time systems, time-response characteristics, stability analysis techniques, digital controller design and implementation techniques, state-space representations of discrete-time systems, state-feedback and pole-placement design. Prerequisites: ELE 321 or ISM 351, and ELE 353 or MCE 410.

ELE 481 Power System Protection (3-0-3). Covers unsymmetrical fault analysis, fuses, voltage and current transducers, fundamental relay operating principles and characteristics, over current protection, comparators and static relay circuits, differential protection and its application to generators, transformers and bus bars, motor protection, system grounding, standard protective schemes for system coordination of relays. Prerequisite: ELE 371.

ELE 482 Electric Power Distribution Systems (3-0-3). Examines concepts and techniques associated with the design and operation of electrical distribution systems. Includes the following topics: load characteristics, distribution substations, choice of voltage levels, loss minimization and voltage control, calculation of impedances of unbalanced three-phase systems, and analysis techniques of radial systems. Prerequisite: ELE 371.

ELE 483 Utilization of Electrical Energy (3-0-3). Examines concepts, design aspects and control techniques associated with the utilization of electrical energy in different fields. Includes the following topics: laws of illumination, operating concepts of different lamps, identification of lighting requirements, design of lighting layouts, design of residential wiring including photovoltaic systems, analysis and calculations of electric drive systems, and operation of electric vehicles and traction systems. Prerequisite: ELE 352.

ELE 485 Power Electronics (3-0-3). Covers operating characteristics of power semiconductor devices such as bipolar junction transistors (BJTs), insulated gate bipolar transistors (IGBTs), metal-oxide semiconductor field-effect transistors (MOSFETs) and Thyristors. Covers the fundamentals of power converter circuits including dc/dc converters, phase controlled ac/dc rectifiers and dc/ac inverters. Addresses practical issues in the

design and implementation of power converters. Prerequisites: ELE 212 and ELE 241.

ELE 486 Electric Drives (3-0-3). Covers the application of semiconductor switching power converters to adjustable speed DC and AC motor drives. Includes the following topics: steady state theory and analysis of electric motion control in industrial, robotic and traction systems. Prerequisites: ELE 241 and ELE 352.

ELE 487 Power Conversion in Renewable Energy Systems (3-0-3). Covers renewable energy conversion systems. Introduces modeling and control of renewable energy sources such as wind and solar energy systems. Addresses power electronics topologies and interfaces for renewable energy systems. Covers integration of renewable energy systems with the distribution grid. Prerequisite: ELE 352.

ELE 490 Electrical Engineering Design Project I (1-2-1). Covers the engineering design process through an open-ended, team-based project of disciplinary relevance. Applies discipline-specific methods and tools to problem identification, definition of objectives and constraints, evaluation of alternatives, and development of a preliminary design. Addresses factors such as sustainability, safety, ethics, economics, societal impact and standards in the design process. Emphasizes the aspects of innovation, entrepreneurship and intellectual property. Develops professional teamwork and communication skills. Prerequisites: ENG 204, senior standing and permission of the department; prerequisites/concurrent: IEN 301 and COE 242.

ELE 491 Electrical Engineering Design Project II (1-3-2). Continues the work of ELE 490. Emphasizes the application of engineering principles to solve real-world problems. Includes exposure to industry practices through interaction with companies or professionals. Prerequisite: ELE 490.

ELE 497 Professional Training in Electrical Engineering (0-6-2). Provides opportunities for the application of engineering knowledge and skills to actual problems in a real-life work setting. Enhances learning and soft skills through practical experience. Reinforces objective-setting and performance measurement through a structured reporting process. Requires a minimum of 16 weeks of approved professional experience of on-the-job training. Graded as Pass/No Pass. Prerequisites: ENG 204, junior standing and approval of internship coordinator.

EWE Environmental and Water Engineering

EWE 331 Introduction to Environmental and Water Engineering (3-0-3). Introduces different components of water resources engineering and environmental engineering, environmental sustainability, environmental and social impact assessment, and environmental risk assessment. Covers surface and groundwater hydrology, quantity and quality of water resources, water supply systems and pollution originating from air, noise and solid waste. Prerequisites: CHM 101 and CHM 101L.

EWE 333 Water Quality and Treatment (3-0-3). Introduces water quality criteria, standards, water sampling and testing methods. Covers pollution sources in water bodies and their impacts on aquatic life. Covers water demand, forecasting and waste generation, and provides a guide to selecting water and wastewater treatment processes. Introduces resource recovery options from water and wastewater treatment facilities. Introduces water re-use options, the importance of pretreatment and quality requirements. Prerequisites: CHM 101 and CHM 101L.

INE Industrial Engineering

INE 202 Fundamentals of Industrial Engineering (3-0-3). Presents a broad introduction to the principles and practices of industrial engineering. Discusses industrial engineering concepts to design and operate manufacturing and service systems. Provides a basic understanding of industrial engineering decisions and analytical tools. Develops an appreciation of how the applications of industrial engineering concepts and tools provide competitive advantages for organizations across industries. Prerequisite: NGN 110.

INE 216L Fundamentals of Engineering Design and Technology (0-3-1). Introduces the engineering design process with emphasis on problem definition, concept generation, evaluation and detailed design development. Applies design methods to translate requirements into feasible engineering solutions. Develops graphical communication skills through freehand sketching, spatial visualization and the creation of 2D and 3D models. Emphasizes the preparation of multi-view and technical drawings that comply with engineering standards and effectively document the design process. Not open to students who have completed MCE 216L. Prerequisite: NGN 110. Lab/Tech fee rate A applies.

INE 222 Operations Research I (3-1-3). Introduces deterministic models in operations research with special emphasis on linear programming. Covers simplex method, duality, sensitivity analysis, transportation and assignment problems, shortest path problem, CPM/PERT, maximum flow problem, and minimum spanning tree problem. Provides real modeling of various industrial problems as linear programs. Prerequisite: INE 202; prerequisite/concurrent: MTH 225.

INE 302 Manufacturing Processes for Industrial Engineers (3-0-3). Provides the fundamentals of the economical manufacturing of products. Encompasses many manufacturing processes for different materials including metals, metal powders, ceramics, polymers and composites. Covers different manufacturing processes including material removal, casting, bulk deformation and assembly. Introduces contemporary topics such as additive and nano-manufacturing. Prerequisites: INE 216L or MCE 216L; and MCE 230; prerequisites/concurrent: INE 302L.

INE 302L Manufacturing Processes for Industrial Engineers Laboratory (0-3-1). Provides hands-on experience in metrology, different machining operations, numerically controlled machining, casting, additive manufacturing, bulk and sheet metal forming, powder metallurgy, processing of polymers and composites, and assembly and joining operations. Prerequisite/concurrent: INE 302.

INE 310 Data Management and Modeling for Industrial Engineering (3-0-3). Covers the development of data and information systems solutions for engineering problems including data models, database development and SQL. Introduces data modeling, summarization and visualization in spreadsheets and business intelligence tools. Covers forecasting and predictive models through spreadsheet tools. Prerequisites: INE 202, and NGN 211 or STA 201.

INE 311 Quality Engineering (3-0-3). Emphasizes the importance of quality management and control. Deals with statistical methods relevant to process control, control charts for variables and attributes, process capability analysis and acceptance sampling plans. Introduces process improvement techniques and six sigma concepts and their applications. Prerequisite: NGN 211 or STA 201.

INE 315 Programming Applications for Industrial Engineering (3-0-3). Introduces programming applications in industrial engineering. Applies programming skills to core industrial engineering problems such as transportation, assignment, supply chain and meta-heuristics. Explores the use of AI-based models for process modeling and improvement. Emphasizes problem-solving, coding practices, and the

use of AI tools such as sentiment analysis, large language models and AI agents. Prerequisites: INE 222 and NGN 112.

INE 322 Operations Research II (3-1-3). Covers deterministic models in operations research and their solution methods. Introduces integer programming formulation and branch and bound method, deterministic dynamic programming, nonlinear programming formulation and unconstrained and constrained optimization techniques. Provides real applications of integer, dynamic and nonlinear programs to industrial and engineering problems. Prerequisite: INE 222; prerequisite/concurrent: MTH 203. Lab/Tech fee rate A applies.

INE 323 Stochastic Processes and Simulation (3-2-3). Introduces stochastic processes and simulation modeling and techniques. Covers discrete and continuous Markov chains, Poisson processes, renewal reward processes, discrete event simulation, simulation languages, model verification and validation. Discusses applications to queuing, reliability and inventory systems. Prerequisites: INE 202, and NGN 211 or STA 201. Lab/Tech fee rate A applies.

INE 331 Analysis of Production Systems (3-1-3). Covers design and analysis of production systems. Introduces the managerial concepts and quantitative techniques required in production planning and inventory control. Includes aggregate production planning, master production scheduling, material requirement planning, single and multiple products inventory control in both certain and uncertain environments. Prerequisites: INE 222, and NGN 211 or STA 201.

INE 332 Analysis of Supply Chains (3-0-3). Presents various concepts, tools and techniques of supply chain management (SCM). Deals with development and application of supply chain decision models with special emphasis on supply network design, supply chain performance metrics, inventory, transportation, sustainability, supply chain risk management and digital transformation. Explores various SCM initiatives that enhance supply chain collaboration. Prerequisite: INE 331; prerequisite/concurrent: INE 322.

INE 333 Facility Design and Operations (3-0-3). Deals with principles and practices of facility design and planning and materials handling equipment for manufacturing and service systems. Includes analytical approaches in site location, facility design and layout, materials handling and storage systems. Emphasizes quantitative methods for warehouse layout and facility location theory. Prerequisite: INE 331.

INE 413 Maintenance Engineering (3-0-3). Covers maintenance workload analysis and calculations, capacity planning of maintenance resources, maintenance work scheduling, maintenance auditing and the measurement of maintenance operations performance, and computerized maintenance management systems (CMMS). Explores recent maintenance concepts and techniques such as predictive maintenance and enterprise asset management. Prerequisites: INE 322 and INE 323.

INE 415 Design of Experiments (3-0-3). Introduces the planning, design and statistical analysis of experiments. Includes analysis of variance (ANOVA), randomized block design, factorial and fractional design, random and mixed models, and response surface methods. Stresses the application of the learned techniques to various engineering problems. Prerequisite: INE 311.

INE 417 Six Sigma Methodology (3-0-3). Covers the concepts of Six Sigma methodology for both manufacturing and service organizations. Introduces lean, six sigma and the DMAIC problem-solving methodology. Discusses continuous process improvement techniques such as process definition, process flow diagrams, data collection, measurement techniques, causes of process variation, Pareto diagrams, cause and effect diagrams, and statistical-based techniques. Prerequisite: INE 311.

INE 418 Decision Science for Service and Manufacturing Systems (3-0-3). Introduces the concepts and methods of decision science. Integrates the application of operations research, analytics methods/techniques and design thinking to real-world decision problems. Explores model-based analyses of complex situations in both service and manufacturing sectors through a disciplined thinking process. Emphasizes applications of decision science in areas such as supply chain management, healthcare, customer service and manufacturing systems. Prerequisites: INE 310 and INE 332.

INE 425 Decision Analysis (3-0-3). Introduces judgment and decision making of individuals, groups and organizations. Includes structured decision problems, decision trees, Bayesian decision analysis, utility theory and multi-criteria decision making. Covers practical applications from various engineering areas. Prerequisite: INE 323.

INE 431 Industrial Scheduling (3-0-3). Examines scheduling applications in manufacturing and services. Covers practical scheduling problems such as single machine, parallel machines, flow shop, job shop and project scheduling with unconstrained and constrained resources. Discuses both exact and approximate procedures to solve such problems. Prerequisite: INE 332.

INE 433 Logistics Engineering (3-0-3). Provides an overview of transportation activities related to design, evaluation and performance of logistics systems. Covers the physical and information flows in supply chains and the economic drivers of logistic choices. Addresses methods to analyze and improve logistics and transportation systems, technology and infrastructure. Prerequisite: INE 332.

INE 434 Analysis of Procurement and Warehousing Operations (3-0-3). Covers key principles and practices of sourcing, supplier collaboration, and warehousing design and operations within the context of modern supply chains. Provides the knowledge and skills essential for optimizing procurement and warehouse operations to drive cost-efficiency of the organization's entire supply chain. Prerequisite: INE 332.

INE 439 Fundamentals of Manufacturing Systems (3-0-3). Covers fundamentals and basic principles associated with manufacturing systems and their automation. Discusses quantitative models and metrics to describe and compare production performance in various types of manned and automated systems. Includes manned and automated single station, assembly and production lines; group and flexible manufacturing systems; material handling systems; process planning and control; and lean and sustainable manufacturing. Prerequisites: INE 302 and INE 302L.

INE 450 Safety Engineering (3-0-3). Introduces safety regulations and standards, industrial hazard avoidance concepts and techniques, and plant safety applications. Covers process safety, analytical trees and fault tree analysis, risk assessment, and emergency planning. Prerequisite: senior standing.

INE 460 Industrial Resources Planning (3-0-3). Provides an overview of Enterprise Resource Planning (ERP) systems. Focuses on how production and related processes interact in an integrated environment. Covers financial and management accounting, purchase-to-pay, plan-to-produce, order-to-cash, and enterprise asset management. Discusses case studies and real-life applications. Not open to students who have completed MGT 315. Prerequisite: INE 331 and EGM 364.

INE 465 Service Systems Engineering (3-0-3). Examines models of reducing costs, increasing revenue and enhancing customer service in service industries. Covers the management of service systems, analysis of service systems using operations management and operations research (OM/OR) techniques, evaluation of the performance of service systems,

service thinking and service industry applications. Prerequisite/concurrent: INE 332.

INE 490 Senior Design Project I (1-2-1). Covers the engineering design process through an open-ended, team-based project of disciplinary relevance. Applies discipline-specific methods and tools to problem identification, definition of objectives and constraints, evaluation of alternatives, and development of a preliminary design. Addresses factors such as sustainability, safety, ethics, economics, societal impact and standards in the design process. Emphasizes the aspects of innovation, entrepreneurship and intellectual property. Develops professional teamwork and communication skills. Prerequisite: ENG 204; prerequisites/concurrent: IEN 301, INE 311 and INE 332.

INE 491 Senior Design Project II (1-3-2). Continues the work of INE 490. Emphasizes the application of engineering principles to solve real-world problems. Includes exposure to industry practices through interaction with companies or professionals. Prerequisite: INE 490.

INE 497 Professional Training in Industrial Engineering (0-6-2). Provides opportunities for the application of engineering knowledge and skills to actual problems in a real-life work setting. Enhances learning and soft skills through practical experience. Reinforces objective-setting and performance measurement through a structured reporting process. Requires a minimum of 16 weeks of approved professional experience of on-the-job training. Graded as Pass/No Pass. Prerequisites: ENG 204, junior standing and approval of internship coordinator.

ISM Intelligent Systems and Mechatronics Engineering

ISM 210 Digital Systems and Microcontroller Interfacing (3-3-4). Covers number systems and information representation. Introduces Boolean algebra, design of combinational and sequential logic circuits. Examines basic building blocks, addressing modes, instruction sets for microcontrollers and microprocessors. Covers microcontroller programming and interfacing for analog/digital input/output, timers and interrupts. Introduces serial communication concepts and evaluates application dependent selection criteria for microcontrollers. Prerequisite: ISM 216L or MCE 226L. Lab/Tech fee rate B applies.

ISM 216L Computer Applications in Intelligent Systems and Mechatronics Engineering I (0-3-1). (Equivalent to MCE 226L) Covers Boolean algebra, numbering system, basic computer hardware, C-programming with focus on input-output, logic statements, loops, arrays, pointers and computer interfacing. Prerequisite: NGN 112. Lab/Tech fee rate B applies.

ISM 231 Thermal-Fluid Sciences (3-0-3). Covers the basic concepts of thermodynamics, properties of matter, processes and cycles, energy transfer and first law of thermodynamics. Covers properties of fluids, kinematics of fluid motion, conservation of mass, Bernoulli's equation, conservation of momentum and head losses in pipes. Introduces the different mechanisms of heat transfer. Prerequisite: MCE 224.

ISM 243 Electronic Circuits (3-0-3). Covers diode circuits; MOSFET transistor; biasing, small signal analysis and design of MOSFET amplifiers; operational amplifiers; power amplifiers; frequency response characteristics of amplifiers; active filters; digital electronics; and digital to analog conversion (D/A) and analog to digital conversion (A/D). Prerequisite: ELE 211.

ISM 316L Computer Applications in Intelligent Systems and Mechatronics Engineering II (0-3-1). (Equivalent to MCE 326L) Covers MATLAB programming basics: input-output, conditional statements, loops, functions; numerical applications; Symbolic Toolbox; MATLAB App Design; and Simulink. Prerequisite: ISM 216L or MCE 226L. Lab/Tech fee rate B applies.

ISM 351 Signal Processing in Intelligent Systems (3-0-3). Covers signal classification and system behavior, impulse response and convolution, signals and systems analysis and representation via the Fourier transform and the z-transform, digital filter design, and application of basic machine learning methods. Prerequisites: ELE 211 and MTH 225.

ISM 361 Mechatronic Systems and Instrumentation (3-0-3). Introduces the concept and application of mechanical, electrical systems and instrumentations for mechatronics system integration. Covers theoretical modeling and analysis of translational and rotational mechanical systems, electrical systems, and electromechanical systems, Laplace transforms, transfer functions, forced and free response, state space model representation, measurement systems and transducers, sensors and signal conditioning, and actuators. Prerequisites: MCE 224 and MTH 225; prerequisites/concurrent: ISM 243; and ISM 316L or MCE 326L.

ISM 364L Measurements and Control Laboratory (0-3-1). Covers the fundamental concepts of measurement and signal acquisition, system dynamics, and control systems through theory and experimentation, including converting physical phenomena to a measurable signal; conditioning, acquiring and analyzing the signal; studying dynamic systems' response in the time and frequency domains; and open loop and closed loop control of various mechatronics systems. Uses CAD software for dynamic response and controller design. Prerequisites: ISM 231, and ELE 353 or MCE 410. Lab/Tech fee rate B applies.

ISM 371 Electric Motors and Drives (3-0-3). Covers the application of semiconductor switching power converters to adjustable speed DC and AC motor drives. Includes the following topics: steady state theory and analysis of electric motion control in industrial, robotic and traction systems. Prerequisite: ISM 243.

ISM 382 Connectivity in Intelligent Systems (3-0-3). Covers connectivity aspects in Internet of Things systems; protocol stacks; the radio layer including channel impairments, errors and link budget; the modem layer including modulation, synchronization and spread spectrum communications; the medium access control layer including multiple access and error detection and correction. Includes an overview of wireless standards for IoT. Prerequisite: ISM 351; prerequisite/concurrent: ELE 360.

ISM 383 Learning in Intelligent Systems (3-0-3). Covers many models and algorithms used in making machines intelligent with focus on the applications of these algorithms on time domain, spatial domain, and frequency domain representations of signals, extracted from audio, video or other sensory inputs. Discusses how to combine information from multiple modalities. Algorithms discussed include linear and non-linear multivariate models, multi-layer neural networks, ensemble methods, Markov decision processes, unsupervised learning, and reinforcement learning. Prerequisites: ISM 351, and ISM 216L or MCE 226L; prerequisite/concurrent: ELE 360.

ISM 391L Intelligent Systems and Mechatronics Design Laboratory (0-3-1). Covers applications of theoretical principles in mechanical, electrical and computer knowledge incorporating sensors, actuators and intelligence for mechatronics systems. Develops an intelligent mechatronic system, including a microcontroller interfacing with power-electronics components, sensors and actuators. Explores industrial mechatronic systems such as programmable logic controllers. Prerequisite: ISM 364L. Lab/Tech fee rate B applies.

ISM 411 Brain Machine Interface (3-0-3). Covers basic human neurophysiology, human senses, electroencephalograph signal recording, EEG signal acquisition,

preprocessing and machine learning. Covers brain computer interface applications such as prosthetic devices, nerve stimulation, cognitive enhancement and ethics in brain computer interface. Prerequisites: ISM 243 and ISM 351.

ISM 412 Statistical Signal Processing (3-0-3). Covers stochastic signal models and the Yule-Walker equations, minimum variance and maximum likelihood estimation, non-parametric and parametric spectral estimation, optimum and adaptive FIR filtering. Introduces array processing techniques such as direction of arrival estimation and adaptive beamforming. Prerequisites: ELE 360, ISM 351 and MTH 225.

ISM 431 Fluid Power Control (3-0-3). Covers hydraulic and pneumatic systems and their use to transfer and control power. Analyzes various aspects of fluid power, fluid mechanics, governing laws, pumps and motors, cavitation, and noise. Covers fundamentals and specific cases of control valves such as direction, pressure and flow control with emphasis on actuators, and servo and electrohydraulic valves. Prerequisite: ISM 231 or MCE 240.

ISM 433 Intelligent Manufacturing (3-0-3). Provides students with a comprehensive understanding of the principles, technologies and applications of intelligent manufacturing systems. Covers an introduction to conventional manufacturing and computer-aided manufacturing; automation and robotics; data analytics, artificial intelligence and the Internet of Things (IoT) in manufacturing; sustainable manufacturing; and Industry 4.0. Provides students with the necessary skills to design, analyze and optimize intelligent manufacturing systems for improved efficiency, productivity and quality. Prerequisites: NGN 112, and ISM 316L or MCE 326L.

ISM 442 Automotive Electronics (3-0-3). Introduces concepts of automotive electronics, solid state sensors and actuators, onboard electronic safety systems, electronic control systems in automotives, communications and radar protocols in automotives, navigation and GPS systems, cruise control systems, modern electronic display panels, digital transformation in cars and airplanes. Prerequisite: ELE 341 or ISM 243.

ISM 443 Introduction to MEMS (3-0-3). Covers concepts related to the design, modeling, materials and applications of MEMS. Discusses fundamental microfabrication methods using silicon wafers. Includes basic elements of solid mechanics, mechanical vibrations and response characteristics of transducers pertaining to the development of MEMS sensors and actuators. Examines several transduction principles commonly used in MEMS sensors and actuators, including electrostatic, thermal, piezoresistive, piezoelectric and magnetic. Prerequisite: ISM 361 or MCE 313.

ISM 484 Smart Grids (3-0-3). Examines the smart grids concept, power system concepts and per unit quantities; steady-state analysis and power flow; and demand response, optimal power flow, renewable energy resources, and their integration with the smart grids. Prerequisites: ISM 371 and MTH 225.

ISM 490 Design Project I (1-2-1). Covers the engineering design process through an open-ended, team-based project of disciplinary relevance. Applies discipline-specific methods and tools to problem identification, definition of objectives and constraints, evaluation of alternatives, and development of a preliminary design. Addresses factors such as sustainability, safety, ethics, economics, societal impact and standards in the design process. Emphasizes the aspects of innovation, entrepreneurship and intellectual property. Develops professional teamwork and communication skills. Prerequisites: senior standing, ENG 204, ISM 210, MCE 223 and MCE 236L; prerequisites/concurrent: IEN 301 and ISM 383.

ISM 491 Design Project II (1-3-2). Continues the work of ISM 490. Emphasizes the application of engineering principles to solve real-world problems. Includes exposure to industry practices through interaction with companies or professionals. Prerequisite: ISM 490.

ISM 497 Professional Training in Intelligent Systems and Mechatronics Engineering (0-6-2). Provides opportunities for the application of engineering knowledge and skills to actual problems in a real-life work setting. Enhances learning and soft skills through practical experience. Reinforces objective-setting and performance measurement through a structured reporting process. Requires a minimum of 16 weeks of approved professional experience of full-time on-the-job training. Graded as Pass/No Pass. Prerequisites: junior II standing and approval of internship coordinator.

MCE Mechanical Engineering

MCE 216L Introduction to Engineering Drawing and Workshop (0-3-1). Covers descriptive geometry, orthographic projections, and computer-aided drafting using commercial computer-aided design software. Introduces the use of basic machines, the development of hand skills and safety in the workshop. Covers basic hand tools, basic machining operations, welding, casting, woodwork, sheet metal work and measuring instruments. Not open to students who have completed INE 216L. Lab/Tech fee rate B applies.

MCE 220 Statics (3-1-3). Covers fundamental concepts and principles of mechanics, vectors and force systems. Topics include concepts of free-body-diagram; principles of equilibrium of particles and rigid bodies in two and three dimensions; analysis of structures: trusses, frames and machines; shear and bending moment in beams; center of gravity; centroids; area moment of inertia; and friction. Not open to civil engineering students. Prerequisites: PHY 101 and PHY 101L.

MCE 222 Dynamics (3-1-3). Examines fundamental concepts of kinematics and kinetics with application to motion of particles and plane motion of rigid bodies. Includes the following topics: rectilinear and curvilinear motion of particles; Newton's second law, impulse and momentum methods; impact, dynamics of systems of particles; kinematics of rigid bodies; plane motion of rigid bodies; forces and accelerations; and energy and momentum methods. Prerequisites: MCE 220 and MTH 104.

MCE 223 Mechanics of Materials (3-1-3). (Equivalent to CVE 223). Covers stress and strain; mechanical properties of materials; axial load, torsion, bending and transverse shear; combined loadings; stress transformation; deflection of beams and shafts; and buckling of columns. Prerequisite: MCE 220 or MCE 224.

MCE 224 Engineering Mechanics–Statics and Dynamics (3-1-3). Covers statics of particles and rigid bodies, vector mechanics, free body diagrams, two-and-three-dimensional force equilibrium systems, truss structures and frames, friction, centroid and moment of inertia, dynamics of particles in rectilinear and curvilinear motions, Newton's second law, considerations of work and energy, and kinematics of rigid bodies. Not open to mechanical engineering or civil engineering students. Prerequisites: MTH 104, PHY 101 and PHY 101L.

MCE 226L Computer Applications in Mechanical Engineering I (0-3-1). (Equivalent to ISM 216L). Covers Boolean algebra, numbering systems, basic computer hardware, C-programming with focus on input-output, logic statements, loops, arrays, pointers and computer interfacing. Lab/Tech fee rate A applies.

MCE 230 Materials Science (3-0-3). Introduces material science; relationships between structure and properties of materials; atomic bonding, crystalline structures, crystal defects and imperfections; phase diagrams and equilibrium; microstructural development; properties of engineering materials; and corrosion. Prerequisites: CHM 101 and CHM 101L.

MCE 236L Solid Modeling (0-3-1). Covers dimensioning, an introduction to fits and tolerances, detailed and assembly drawings, solid modeling and computer-aided drafting using commercial computer-aided design software. Prerequisite: MCE 216L. Lab/Tech fee rate A applies.

MCE 240 Fluid Mechanics (3-1-3). Covers fundamental concepts and properties of fluids; fluid statics, forces on planar and curved surfaces, and buoyancy; kinematics of fluid motion; conservation equations with applications; continuity, momentum and energy equations, and Bernoulli's equation; velocity and flow rate measurements; dimensional analysis and similitude; and head losses in pipes. Prerequisites: MCE 220 or MCE 224, and MTH 104.

MCE 241 Thermodynamics I (3-1-3). (Equivalent to CHE 214). Covers basic concepts of thermodynamics, properties of matter, processes and cycles, energy transfer, first law of thermodynamics for closed systems and control volumes, second law of thermodynamics, introduction to cycle analysis, entropy and exergy analyses and engineering applications. Not open to chemical engineering students. Prerequisites: PHY 101 and PHY 101L.

MCE 310 Fundamentals of Electromechanical Systems (3-0-3). Covers modeling and analysis of translational and rotational mechanical systems, electrical systems and electromechanical systems; system time response and Laplace transform techniques; basic concepts of state-space and input/ output systems representation; operating principles of electromechanical systems and DC/AC actuators. Prerequisites: PHY 102 and MCE 222; prerequisite/concurrent: MCE 326L.

MCE 313 Engineering Measurements (3-0-3). Covers basic concepts of measuring methods; elements of electrical circuits; static and dynamic characteristics of signals; types of errors; sampling; signal conditioning; data acquisition; physical aspects of temperature, pressure, fluid flow, force, stress, strain and torque measurements; assessing and presenting measured data; and uncertainty analysis. Covers dynamic response of measurement systems and computer simulations. Prerequisites: MCE 222; prerequisite/concurrent: MCE 310.

MCE 313L Engineering Measurements Laboratory (0-3-1). Covers fundamental concepts of measurement and signal acquisition through theory and experimentation, including transduction mechanisms of physical phenomena, signal acquisition, conditioning and analysis. Includes laboratory experiments with emphasis on electrical circuits and signal conditioners along with pressure, temperature, motion and strain measurements. Prerequisite/concurrent: MCE 313. Lab/Tech fee rate B applies.

MCE 323 Mechanical Design (3-0-3). Covers the process of materials selection, stress, strain, and deflection of solid elements as applied to mechanical design. Covers failure prevention under static and fatigue loading conditions in addition to the design and selection of mechanical elements including power screws, bearings, gears, and shafts. Prerequisites: MCE 223; prerequisite/concurrent: MCE 331.

MCE 325 Numerical Methods in Engineering (3-0-3). (Equivalent to CVE 325). Covers basic concepts of computational methods; error analysis; numerical solutions of linear and non-linear algebraic equations; numerical approximations: regression and interpolation; numerical differentiation and integration; numerical solution of ordinary differential equations: initial and boundary value problems, eigenvalue problems; introduction to numerical solution of partial differential equations; and engineering applications using software. Prerequisites: MCE 326L; and MTH 225, or both MTH 205 and MTH 221.

MCE 326L Computer Applications in Mechanical Engineering II (0-3-1). (Equivalent to ISM 316L). Covers MATLAB programming software, input-output, loops functions, s-functions and embedded MATLAB functions. Introduces Simulink MATLAB toolbox for mechanical simulations. Includes a term project on interfacing a mechanical system to computer hardware. Prerequisite: MCE 226L. Lab/Tech fee rate A applies.

MCE 331 Manufacturing Processes (3-0-3). Covers the fundamentals of manufacturing processes, including casting, forming, welding and machining operations. Introduces basics of economics of metal cutting, statistical quality control, non-metals manufacturing and other contemporary topics in manufacturing. Prerequisites: MCE 216L, MCE 220 or MCE 224, and MCE 230.

MCE 332L Materials and Manufacturing Processes Laboratory (0-3-1). Covers experimental determination of mechanical properties of engineering materials. Includes experiments covering different manufacturing processes such as casting, welding, forming and machining. Introduces new experiments on contemporary topics in materials and manufacturing. Prerequisite/concurrent: MCE 331. Lab/Tech fee rate B applies.

MCE 341 Thermodynamics II (3-0-3). Covers energy system analysis including modern power cycles, refrigeration and heat pump cycles; Maxwell relations and development of thermodynamic properties; thermodynamics of non-reacting and reacting mixtures of real and ideal gases; psychrometry and air conditioning processes; combustion fundamentals and chemical reactions. Prerequisite: MCE 241.

MCE 344 Heat Transfer (3-0-3). (Equivalent to CHE 307). Covers mechanisms of heat transfer, steady-state conduction in various geometries, electric network analogy, fins, numerical methods in heat transfer, transient conduction, natural and forced convection, internal and external heat transfer, heat exchanger analysis, and fundamentals of thermal radiation. Prerequisites: MCE 240 and MCE 241.

MCE 345L Thermofluids Laboratory (0-3-1). Includes the experimental evaluation and analysis of the performance of energy systems, the thermal conductivity of solids and fluids, and the performance curves of pumps; and experiments on fluid flow, heat exchangers, cooling towers, internal combustion engines, and refrigeration and air conditioning systems. Prerequisites/concurrent: MCE 341 and MCE 344. Lab/Tech fee rate B applies.

MCE 410 Control Systems (3-0-3). (Equivalent to ELE 353). Covers feedback system response, feedback control system characteristics, performance and stability of feedback control systems, root-locus techniques, frequency domain analysis and design of feedback control systems. Prerequisites: MCE 310 and MCE 313L; or ISM 361.

MCE 415L Dynamics and Control Systems Laboratory (0-3-1). Covers experiments on system dynamics, vibration and control systems. Includes experiments on dynamic systems' response in the time and frequency domains, and open loop and closed loop control of various mechanical systems. Uses CAD software for dynamic response and controller design. Prerequisite/concurrent: MCE 410. Lab/Tech fee rate B applies.

MCE 416 Kinematics and Dynamics of Machinery (3-0-3). Explores kinematics and dynamic analysis and synthesis of linkages (displacement, velocity, acceleration and force analysis), cam-follower, gear-train systems, and balancing of rotating systems. Prerequisite/concurrent: MCE 310 or ISM 361.

MCE 423 Mechanical Vibrations (3-0-3). Provides a review of single and two degree-of-freedom vibration time and frequency response (free, transient and harmonic forcing). Includes analysis of multi-degree of freedom system (mass, stiffness and damping matrices). Covers modal analysis and frequency response functions (FRF), vibration analysis of continuous structures and finite element method. Covers vibration measurements

and testing: vibration signal analysis, vibration isolation techniques, vibration measurements of active structures, including vibrating machines and rotating machinery. Prerequisite: MCE 310 or ISM 361.

MCE 438 Inspection and Nondestructive Testing (3-0-3). Provides the skills needed to interpret codes and procedures in the fields of nondestructive testing (NDT). Covers NDT management and certification programs; basic principles of defect probability of detection (POD); surface inspection methods such as visual, penetrant and magnetic testing; and volumetric inspection methods such as ultrasonic and radiographic testing. Designs inspection techniques and analyzes inspection results. Prerequisites: MCE 313 and MCE 331.

MCE 445 Energy Systems (3-0-3). Covers types of power plants, thermodynamics of power plants, combined power plants, systems components, design parameters, plant evaluation, efficiency calculations methods, modifications to improve system performance, cogeneration plants, thermodynamics and economics of cogeneration plants, system equipment, practical schemes of cogeneration plants, power plant economics, power plant planning, design concepts, power plant control, burner management and environmental impact of power plants. Prerequisites: MCE 341 and MCE 344.

MCE 446 Refrigeration and Air Conditioning (3-1-3). Introduces ventilation, air conditioning and refrigeration; classification and selection of air conditioning systems; applied psychrometrics, design conditions, human thermal comfort and indoor air quality; heating and cooling loads calculations; vapor compression refrigeration cycles; refrigeration equipment and systems; heating equipment and systems; air distribution systems and duct design; and fire and smoke control in duct systems. Addresses American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Covers software applications used to design conventional and nonconventional systems. Prerequisites: MCE 341 or CHE 304, and MCE 344. Lab/Tech fee rate A applies.

MCE 447 Internal Combustion Engines (3-0-3). Covers fundamental principles of engine operation and applications, engine classifications, engine design and operating parameters, engine cycles, thermo-chemistry and fuels, air and fuel induction systems, fluid motion within combustion chambers, combustion in spark ignition engines, combustion in compression ignition engines, exhaust system, engine emission and air pollution, methods of emission control, engine friction and lubrication, and engine operating characteristics. Introduces modeling of real engine flow and combustion processes, as well as new trends in internal combustion engines. Prerequisite: MCE 341.

MCE 450 Energy Conservation and Management (3-0-3). Analyzes energy systems, including fossil fuels, steam, cogeneration, waste heat recovery, refrigeration and air conditioning systems; total energy management; energy management organization and approach; energy conservation in electrical load; lighting, building envelop, and insulation; economic energy analysis; energy auditing; monitoring and targeting; technical approaches and analyses; control; and energy management systems. Prerequisite: MCE 341.

MCE 451 Renewable Energy Systems (3-0-3). Evaluates the effects of fossil fuels-based energy systems on the environment and society. Focuses on the fundamentals and main characteristics of renewable energy technologies such as solar (thermal and photovoltaic), hydropower, wind, geothermal, biomass, ocean thermal, wave and tidal energies. Addresses comparative environmental assessments between renewable energy systems and conventional fossil fuel systems. Focuses on the design of renewable/hybrid energy systems that are economically feasible, have a minimal impact on the environment and meet specific energy demands. Prerequisite: MCE 241.

MCE 452 Fuel Cells and Hydrogen Systems (3-0-3). Covers the basic concepts of fuel cells and fuel cell stacks. Discusses the design of various types of fuel cells such as phosphoric acid, alkaline, proton exchange membrane, molten carbonate, solid oxide and direct methanol fuel cells. Studies the technical aspects of fuel cells with respect to thermodynamics, transport phenomena and electrochemistry. Prerequisites: MCE 341 and MCE 344.

MCE 464 Introduction to Robotics (3-0-3). Gives an overview of robotics, robot coordinate systems, and direct and inverse kinematics. Introduces manipulator dynamics and force control and compliance. Includes robot sensors and control strategies, and requirement of digital control of robots. Prerequisite: MCE 310 or ELE 353 or ISM 361.

MCE 466 Introduction to Mechatronics (2-3-3). Introduces the application of microprocessors and digital electronics to the design and application of control systems embedded in smart products. Covers sensors, actuators, software, system hardware and interfacing for mechanical engineering applications, as well as smart product design. Prerequisites: ELE 332L and ELE 353, or MCE 310 and prerequisite/concurrent MCE 313L. Lab/Tech fee rate B applies.

MCE 473 Applied Finite Element Analysis (2-3-3). Introduces Finite Element Method (FEM) and its application in different mechanical engineering problems. Includes theoretical and computational basics of finite element method, element formulation and assembly of global matrices. Uses commercial software to solve various engineering problems. Applications include solid mechanics, 2-D steady state heat conduction and fluid problems. Prerequisite: MCE 323; prerequisite/concurrent: MCE 344. Lab/Tech fee rate B applies.

MCE 477 Composite Materials (3-0-3). Examines advanced composite materials and applications. Covers stress-strain relationship for an orthotropic lamina, laminate analysis, static strength of laminates, analysis of laminated beams, introduction to micro-mechanical analysis of laminae, design applications and computer program applications. Prerequisites: MCE 230, and MTH 221 or MTH 225; prerequisite/concurrent: MCE 323.

MCE 482 Intermediate Fluid Mechanics (3-0-3). Covers potential flow, stream function, velocity potential, plane flow past closed-body shapes, airfoil theory; fluid dynamic forces on immersed bodies, drag and lift, flow over cylinder, sphere and flat plate; fundamentals of compressible fluid flow, isentropic flow, shock waves and supersonic nozzles and friction and heat interaction; types of pumps and turbines, pumps and turbine scaling laws. Introduces the use of commercial computational fluid dynamics (CFD) software. Prerequisites/concurrent: MCE 325, MCE 345L and MTH 203.

MCE 485 Hydraulics of Pipeline Systems (3-0-3). Covers fundamentals of piping systems, hydraulic and mechanical design considerations, pipe sizing and selection, constant and telescopic wall thickness, pipe network design, pipeline economics, transient pipe flow, pumps performance, affinity laws, cavitations and net positive suction head. Introduces drag reduction techniques, thermal hydraulics and natural gas transmission. Prerequisite: MCE 344.

MCE 487 Turbomachines (3-0-3). Explores classification of turbomachines, dimensional analysis and model testing; basic equations of fluid mechanics and Euler's theory; incompressible flow turbomachines (centrifugal and axial flow pumps), system matching, performance characteristics and cavitation; hydraulic turbines; compressible flow turbomachines (centrifugal and axial flow compressors), reaction ratio, stage loading, stage efficiency, surge and choking limits; and axial flow gas turbines. Prerequisites: MCE 240 and MCE 341.

MCE 488 Introduction to Computational Fluid Dynamics (CFD) (2-3-3). Explores discretization techniques and solution

algorithms; finite difference solutions to classical model equations pertinent to wave phenomena, diffusion phenomena, or equilibrium, boundary and initial conditions and stability considerations, application into equations of fluid mechanics and heat transfer, using software packages in solving CFD problems. Prerequisite: MCE 325; prerequisite/concurrent: MCE 344. Lab/Tech fee rate B applies.

MCE 490 Mechanical Engineering Design Project I (1-2-1). Covers the engineering design process through an open-ended, team-based project of disciplinary relevance. Applies discipline-specific methods and tools to problem identification, definition of objectives and constraints, evaluation of alternatives, and development of a preliminary design. Addresses factors such as sustainability, safety, ethics, economics, societal impact and standards in the design process. Emphasizes the aspects of innovation, entrepreneurship and intellectual property. Develops professional teamwork and communication skills. Prerequisites: MCE 313 and senior standing; prerequisites/concurrent: IEN 301, MCE 323 and MCE 345L.

MCE 491 Mechanical Engineering Design Project II (1-3-2). Continues the work of MCE 490. Emphasizes the application of engineering principles to solve real-world problems. Includes exposure to industry practices through interaction with companies or professionals. Prerequisite: MCE 490.

MCE 497 Professional Training in Mechanical Engineering (0-6-2). Provides opportunities for the application of engineering knowledge and skills to actual problems in a real-life work setting. Enhances learning and soft skills through practical experience. Reinforces objective-setting and performance measurement through a structured reporting process. Requires a minimum of 16 weeks of approved professional experience of on-the-job training. Graded as Pass/No Pass. Prerequisites: ENG 204, junior standing and approval of internship coordinator.

NGN Engineering

NGN 110 Introduction to Engineering and Computing (1-2-2). Examines common concepts in the engineering and computer science disciplines. Introduces teamwork, problem solving, design process principles, use of models and tools in engineering design, written and oral communications, and topics in professional ethics and sustainability, all in the context of contemporary topics for engineers and computer scientists. Requires a multidisciplinary design project to be completed in a team environment through multiple visits to makerspace facilities in different departments. Prerequisite: admission to the College of Engineering.

NGN 112 Introduction to Artificial Intelligence and Data Science (3-0-3). Introduces artificial intelligence (AI) and data science basics. Covers data loading, preprocessing, summarization and visualization. Covers basic AI and machine learning applications using regression and classification techniques. Introduces artificial neural networks and their applications in engineering. Uses programming tools to implement simple data science and machine learning tasks.

NGN 211 Introduction to Engineering Probability and Statistics (3-1-3). (Equivalent to STA 201). Examines concepts of probability and statistics and their applications to engineering problems. Includes the following topics: elements of probability, descriptive and inferential statistics; discrete and continuous random variables; parameter estimation and hypothesis testing; and linear regression models. Introduces engineering computational tools for probability and statistical analysis. Prerequisite: MTH 103.

NGN 220 Digital Technology and Citizenship (3-0-3). Covers concepts related to emerging digital technologies, their societal impact, and skills for effective and responsible use of generative AI digital tools such as ChatGPT and resources. Discusses digital citizenship concepts including ethics, digital rights management, cybersecurity and computing innovation effects on individuals and societies. Includes fundamentals of contemporary technologies such as blockchain and artificial intelligence; emphasizes responsible and informed digital engagement while fostering an appreciation of the evolving digital landscape. Prerequisite: WRI 101.

NGN 397 Professional Training in Engineering and Computing (0-0-0). Provides an opportunity for the application of engineering knowledge and skills to actual problems in a real-life work setting. Enhances learning and soft skills through practical experience. Reinforces objective-setting and performance measurement through a structured reporting process. Requires a minimum of 8 weeks of approved professional experience of on-the-job training. Graded as Pass/Fail. Prerequisites: junior II standing and ENG 204. Registration fee applies.

SFE Safety and Fire Protection Engineering

SFE 410 Fundamentals of Fire Protection Engineering (3-0-3). Covers the principles of fire dynamics and heat transfer; automatic detection and suppression systems to analyze fire protection requirements; relevant physical and chemical phenomena and commonly used hardware in automatic sprinkler, gaseous agent, foam and dry chemical systems; hydraulic analyses of pipe flow networks; and understanding the phenomenology involved in water spray suppression. Prerequisite: junior standing.

SFE 420 Fire Resistance in Buildings (3-0-3). Introduces fire safety in buildings. Covers fire behavior and heat transfer; fire severity; material properties at elevated temperatures; fire resistance evaluation using different methods; and behavior of different types of building components exposed to fire. Uses state-of-the-art software tools to assess fire resistance in buildings. Prerequisite: CHE 230 or CVE 223 or ELE 212 or MCE 223 or MCE 230.

Independent Study

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

Students are allowed to take one independent study. A second independent study could be approved by the student's associate dean for graduation purposes only.

Independent Course (1 to 4 credit hours). An existing course offered in an independent study format. The course is coded using the course number in the catalog. Approved special topic courses can be offered in an independent course format.

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

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

Directed Study (1 to 4 credit hours). An investigation under faculty supervision beyond the scope of existing courses. Prerequisites: minimum CGPA of 3.00, Junior II standing and consent of the instructor.

Directed study courses are numbered as 396 or 496 courses. The three-letter course prefix reflects the field of study of the course (e.g., directed study courses in chemical engineering are coded as CHE 396 or CHE 496).

For more details on independent study, please refer to Registration in Independent Study Courses in the Academic Policies and Regulations section of this catalog.

Special Topic Courses

Special Topic (1 to 4 credit hours). Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: topic specific. Lab/Tech fee may apply.

Special topic courses are numbered as 194, 294, 394 or 494 courses. The three-letter course prefix reflects the field of study of the course.

Special topic courses at the 300 level require sophomore standing or above; 400-level special topic courses are restricted to junior standing and above.

Descriptions of particular special topic courses are made available in the college during registration.

School of Business Administration

ACC Accounting

ACC 201 Fundamentals of Financial Accounting (3-0-3). Introduces the principles and concepts underlying financial statements. Includes an introduction to the accounting profession, control, concepts, business entities and all elements of basic financial statements. Prerequisite: any AUS math placement test or exemption from the placement test, or any preparatory math course.

ACC 202 Fundamentals of Managerial Accounting (3-0-3). Introduces the principles and concepts underlying managerial accounting. Includes an introduction to management accounting information and cost accounting. Prerequisite: ACC 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. Includes financial statement analysis, income measurement, valuation of assets and equities, and generally accepted accounting principles. Prerequisite: ACC 202.

ACC 302 Intermediate Financial Accounting II (3-0-3). Continuation of Intermediate Financial Accounting I; focuses on accounting for long-term liabilities, stockholder's equity, cash flow analysis and international financial statements. Prerequisite: ACC 301.

ACC 303 Cost Accounting (3-0-3). Covers the uses of accounting data for planning control and decision-making. Topics include budgets and cost concepts, techniques and behavior. Prerequisite: ACC 202.

ACC 305 Income Tax I (3-0-3). Introduces the US federal income tax system as it applies to personal income taxes and examines the legislative, judicial and regulatory bases of the code, as well as exposure to the tax accounting concepts of income, examinations, exclusions, losses, expenses, credits, property transactions and AMT as they apply to theory and practice. Prerequisite: ACC 301.

ACC 306 Income Tax II (3-0-3). Introduces the US federal income tax system as it applies to corporations, partnerships, estates and trusts. Includes a comparison and contrast of personal and corporate taxation, as well as an examination of corporate organization and capital structure, distributions and reorganizations and accumulated earnings rules. Prerequisite: ACC 301.

ACC 307 UAE Corporate Tax (3-0-3). Covers the foundational principles of UAE corporate taxation with a focus on determining taxable income and calculating corporate tax payable based on guidance from the Federal Tax Authority (FTA). Discusses key topics such as taxable and exempt entities, tax rates and deductions. Prerequisite: ACC 202.

ACC 308 UAE Value Added Tax (3-0-3). Focuses on the UAE's VAT system and excise. Covers the regulatory environment, compliance requirements and practical aspects of VAT accounting. Explores topics such as input and output VAT, zero-rated and exempt supplies, and VAT return preparation. Prerequisite: ACC 202.

ACC 360 Accounting Information Systems (3-0-3). Provides an overview of current accounting information systems concepts, web technology, online auditing issues and contemporary accounting issues. Includes the following topics: e-business, computer hardware and software issues, accounting cycles, systems development, computer crime, auditing and expert systems. Prerequisites: ACC 202 and junior standing.

ACC 380 Data Analytics for Accounting (3-0-3). Promotes critical thinking about whether and how data can improve business performance, create opportunities and manage risk. Explores how to answer business questions, shape corporate strategy, forecast financial trends, hinder fraud, and budgeting and planning. Explains some of the most common business intelligence software packages currently used by accounting professionals. Prerequisite: ACC 202.

ACC 385 Forensic Accounting (3-0-3). Explores the necessary knowledge in forensic accounting techniques, and the required skills to gather, examine and report evidence related to fraudulent activities. Promotes critical thinking about the methods used for deterring, investigating and uncovering fraud schemes and emphasizing the role of ethics in preventing fraud, and litigation effects. Prerequisite: ACC 201.

ACC 401 Advanced Financial Accounting (3-0-3). Covers theory and practices of accounting for partnerships, business combinations, and consolidated financial statements. Includes preparation, reading, analysis and evaluation of consolidated financial statements based on guidelines provided under relevant accounting standards. Introduces topics such as governmental accounting, accounting for non-profit organizations and multinational accounting. Prerequisite: ACC 302.

ACC 410 Auditing (3-0-3). Studies auditing theory, generally accepted auditing standards, audit procedures, audit reports and the responsibilities and ethics of the auditing profession. Includes the following topics: risk, evidence, internal controls, sampling, audit testing, subsequent events, professional liability, reporting statutory provisions, compilation and review services, and reporting under government auditing standards. Prerequisite: ACC 301.

ACC 413 Introduction to Accounting for Government and Non-Profit Entities (3-0-3). Introduces accounting practices and fund management planning, financial control, and the usefulness of accounting data for evaluating program inputs and outcomes. Prerequisite: ACC 301.

BIS Business Information Systems

BIS 101 Business Information Systems (3-0-3). Provides technical proficiency and expertise in office tools as well as important computer skills. Presents analytical techniques and essential knowledge to enhance productivity in higher-level courses. Enhances the ability to apply advanced features of spreadsheet software to business case assignments. Not open to computer science and computer engineering students.

BLW Business Legal Issues

BLW 301 Business Law (3-0-3). Examines business legal issues such as legal concepts, philosophy and functions of court systems. Surveys contracts, sales, agents, legal forms of business and the regulation of businesses. Focuses on US law but also considers international and global legal perspectives. Prerequisites: ACC 201 and ECO 202; prerequisite/concurrent: ENG 204 or ENG 208.

BUS Business

BUS 100 Introduction to Business (3-0-3). Introduces the basic principles of business, including the economic setting in which business operates, types of business ownership and business

structure. Explains the role of management, marketing, finance and accounting, as well as the distribution of goods and services. Explores the evolution of business enterprise.

BUS 300 International Study Tour (3-0-3). Provides a firsthand opportunity to learn by experiencing the world of international business. Includes a visit to the headquarters of multinational organizations and seminars given by the professionals from these corporations. Prerequisites: academic standing; and junior standing, or sophomore standing with permission of instructor.

BUS 397 Business Internship (0-0-0). Requires a minimum of five weeks (200 hours) of on-the-job experience with an approved organization. Mandates documenting the work undertaken in a formal report as required by the School of Business Administration. Graded as Pass/Fail. Prerequisites: junior II standing and permission of internship manager. Registration fee applies.

BUS 497 Business Practicum (3-0-3). Provides opportunities for application of theory to actual problems in real-life business settings. Enhances research, writing, technical, presentation and soft skills through practical experience. Reinforces objective-setting and performance measurement through a structured reporting process. Requires a minimum of 12 weeks (480 hours) of on-the job experience with an approved organization. Graded as Pass/Fail. Repeatable up to 6 credit hours. Prerequisites: junior II standing and permission of internship manager.

ECO Economics

ECO 100 Economics and Society (3-0-3). Presents a basic introduction to key economic issues facing individuals and society. Describes the economic way of thinking about events and decisions in the real world. Employs everyday life choices to demonstrate in simple terms how people respond to incentives. Prerequisite: EPT score of 4 or ELPT score of 1 or WRI 001, or placement into WRI 101.

ECO 201 Principles of Microeconomics (3-0-3). Introduces the basic principles of microeconomics and their applications: supply and demand, operation of markets, consumer and enterprise behavior, competition and monopoly, income distribution and international trade. Prerequisite: ELPT score of 1 or EPT score of 4 or WRI 001, or placement into WRI 101.

ECO 202 Principles of Macroeconomics (3-0-3). Introduces the basic principles of macroeconomics, stressing national income, unemployment, inflation, economic growth, business cycles and open economies. Prerequisite: ELPT score of 1 or EPT score of 4 or WRI 001, or placement into WRI 101.

ECO 301 Intermediate Microeconomics (3-0-3). Studies consumer and firm optimization. Emphasizes applications to different market structures, in addition to uncertainty and asymmetric information. Prerequisites: ECO 201, ECO 202, MTH 102 or MTH 103 or MTH 111, and WRI 102.

ECO 302 Intermediate Macroeconomics (3-0-3). Examines macroeconomic theory and its application to factors that determine the level of income, employment, output and prices in an economic system. Emphasizes stabilization policies and empirical applications. Prerequisites: ECO 201, ECO 202 and WRI 102.

ECO 305 International Trade (3-0-3). Introduces the economics of international trade, including why countries trade, commercial trade policies and their effects, growth and international trade, and multinational firms. Prerequisites: ECO 201, ECO 202 and WRI 102.

ECO 306 International Monetary Economics (3-0-3). Starts with the basics of international capital flows, exchange rate determination and the analysis of the international monetary system. Uses theory to analyze contemporary issues such as globalization and liberalization of capital flows. Addresses the stability of foreign exchange markets with reference to currency crises in emerging markets. Prerequisites: ECO 201, ECO 202 and WRI 102.

ECO 310 Development Economics (3-0-3). Studies the economic transformation of developing countries. Examines both standard models of economic growth and micro-level foundations of economic development; among the latter are the role of institutional arrangements, the absence of fully functioning markets and the functional role of income distribution. Prerequisites: ECO 201, ECO 202 and WRI 102.

ECO 312 Economics of Labor (3-0-3). Covers the economic analysis of employment and wages. Examines unemployment, migration, human capital accumulation, incentive pay, income inequality and discrimination. Assesses the labor market effects of unions, regulation, the business cycle and long-term growth. Prerequisites: ECO 201, ECO 202 and WRI 102.

ECO 315 Economics of the Middle East (3-0-3). Covers economic growth and social outcomes of the contemporary Middle East. Focuses on development and production patterns, human capital and labor market conditions, migration and trade. Examines regional similarities and differences, and the roles of oil and the state. Addresses the interaction of resources, institutions and economic change. Prerequisites: ECO 201, ECO 202 and WRI 102.

ECO 320 History of Economic Thought (3-0-3). Analyzes the development of economic theory. Uses specific historical contexts and also explores the major figures and schools in economic thought. Prerequisites: ECO 201, ECO 202 and WRI 102.

ECO 322 Cost-Benefit Analysis (3-0-3). Covers the economic appraisal of private and public projects. Introduces methods of comparison and selection among alternative investments. Examines spending and revenue cash flows; measures of worth and return; and the effects of preferences, interest rate and inflation on the value of money. Discusses inter-temporal rational decisions and the social net benefit of projects, including cash estimates of non-monetary impacts. Explains demand and cost estimation, and asset replacement decisions. Prerequisites: ECO 201 and WRI 102.

ECO 325 Public Economics (3-0-3). Examines the microeconomic theory as a framework for understanding the problems of public managers. Considers resource scarcity, consumer behavior, production costs, economics of efficient management, operation of product markets under competition and monopoly, labor markets, market failure and public goods. Prerequisites: ECO 201, ECO 202 and WRI 102.

ECO 327 Industrial Organization (3-0-3). Studies the theory and the empirical evidence concerning the organization of firms and industries. Focuses on industry structure, on conduct and performance, and on more recent advances based on microeconomic theory, including transactions cost economics, game theory, strategic behavior and information theory. Prerequisites: ECO 201, ECO 202 and WRI 102.

ECO 330 Money and Banking (3-0-3). Examines the role of money and credit in the economy. Includes the following topics: the structure and operations of commercial banks, central banking and the operation of monetary policy, non-banking institutions and the structure of financial markets, and elements of monetary theory. Prerequisites: ECO 201, ECO 202 and WRI 102.

ECO 333 Islamic Economics (3-0-3). Introduces the positive and normative principles of Islamic economics from a historical and history of thought perspective. Examines the role of the state in economic activity, comparing the

Islamic economic system with contemporary systems such as capitalism and Marxism. Prerequisites: ECO 201, ECO 202 and WRI 102.

ECO 340 Real Estate Economics (3-0-3). Examines the spatial pattern of economic activities and commercial and residential real estate in urban areas. Analyzes the markets for real estate and related public policies using urban economic theories and financial economic tools. Considers how demand for space varies by location characteristics, such as transportation costs, schooling, crime and pollution. Explains the concepts of real estate investments and the supply of residential and commercial real estate by emphasizing the durability and reusability of real estate properties. Prerequisites: ECO 201 and ECO 202.

ECO 341 Behavioral Economics (3-0-3). Applies insights from psychology to the study of economic problems and decisions. Addresses why people behave in ways that are inconsistent with the predictions of traditional models of rationality and self-interest. Discusses public policy in the presence of behavioral biases and beliefs, as well as findings from laboratory and field experiments. Covers choice under perceived risk, limit to self-control, myopia, time inconsistency, information suppression, peer effect and behavioral strategic interactions. Prerequisites: ECO 201, ECO 202 and WRI 102.

ECO 350 Management and Analysis of Econ Data (3-0-3). Covers the practice of managing and analyzing economic and related data. Provides guidance on how to retrieve, prepare, examine, interpret and report data. Discusses different approaches to empirical studies in economics. Applies quantitative knowledge and develops data skills to produce an empirical project using specialized software. Prerequisites: ECO 201, ECO 202, WRI 102, and any one of QBA 201, NGN 211, STA 201 or STA 202.

ECO 351 Introduction to Econometrics (3-0-3). Covers inferential statistics and regression estimation and analysis, including detection and treatment for violations of the classical assumptions, omitted variable bias, dummy variables and binary dependent variables. Emphasizes model-building techniques and interpretation of results. Prerequisites: ECO 201, ECO 202, WRI 102 and any one of QBA 201, NGN 211, STA 201 or STA 202.

ECO 401 Managerial Economics (3-0-3). Considers managerial decision-making from the perspective of traditional and modern theories of the firm. Covers demand and cost estimation, measures of market concentration, pricing strategies, product differentiation, decisions under uncertainty and asymmetric information, strategic interactions and bargaining. Prerequisites: ECO 201, WRI 102, and any one of QBA 201, NGN 211, STA 201 or STA 202.

ECO 404 Economics of Environmental and Natural Resources (3-0-3). Covers the economic issues that arise in the use of environmental resources. Addresses the contention that markets fail to adequately manage environmental problems and evaluates alternative pollution-control mechanisms. Focuses on topics such as water and air quality, natural resource management, renewable and non-renewable energy, global climate change, fisheries, biodiversity and environmental conservation. Prerequisites: ECO 201, ECO 202 and WRI 102.

ECO 410 Urban and Regional Economics (3-0-3). Analyzes the economics of the location and growth of urban and regional areas with emphasis on public policy issues. Includes discussion of land-use patterns, measurements and change in regional economic activity, and urban problems such as transportation, housing, poverty and crime. Prerequisites: ECO 201, ECO 202 and WRI 102.

ECO 451 Advanced Econometrics (3-0-3). Addresses topics in cross section and panel data estimation, with emphasis on assessment of internal validity and limits to causal inference. Covers non-classical estimation methods: instrumental variables, multinomial models, truncation and censoring, selectivity, simultaneous equations, dynamic effects, and fixed and random effects panel models. Prerequisite: ECO 351.

ECO 452 Economic Forecasting (3-0-3). Covers the basics of forecasting and time series analysis in economics, finance and business. Discusses deterministic and stochastic properties of time series. Focuses on the construction of estimates, and tests univariate and multivariate forecasting models. Considers the evaluation of forecasts in terms of unbiasedness, efficiency and predictive information content. Prerequisites: ECO 201 and ECO 202, and any one of QBA 201, NGN 211, STA 201 or STA 202.

ECO 490 Senior Project in Economics (3-0-3). Provides the opportunity to apply economic methodology and tools to an independent, student-defined research project. Prerequisites: ECO 301, ECO 302, ECO 351 and junior II standing.

FIN Finance

FIN 201 Fundamentals of Financial Management (3-0-3). Introduces business finance, including global aspects; acquisition and use of short-term funds and long-term capital; overview of money and capital markets; management of assets, liabilities and capital accounts; financial analysis and time value of money; valuation of corporate securities; long-range capital budgeting; leasing; and cost of capital. Prerequisites: ACC 201, MTH 102 or MTH 103 or MTH 111, and any one of QBA 201, NGN 211, STA 201 or STA 202.

FIN 304 Real Estate Investing (3-0-3). Covers terminology, legislation, principles and analytical techniques pertaining to financing of real estate. Includes the perspective of lender, residential borrower and income property borrowers. Addresses real estate dynamics and role in the economy. Prerequisites: FIN 201 and WRI 102.

FIN 310 Analysis of Financial Statements (3-0-3). Provides the skills needed to read, analyze and interpret the information contained in a company's financial statements. Integrates accounting and financial principles and discusses the ethics of both professions. Prerequisites: ACC 202 and FIN 201.

FIN 320 Banking (3-0-3). Provides an overview of the banking industry with an emphasis on commercial bank management. Specific topics include the duration and term structure of interest rates, asset/liability management, and risk and credit management. Prerequisites: FIN 201 and WRI 102.

FIN 330 Investments (3-0-3). Covers investment objectives, mechanics of buying and selling financial assets, and portfolio management. Focuses on risk versus return in investment theory, as well as on constructing and managing real-time hypothetical investment portfolios. Prerequisites: FIN 201 and WRI 102.

FIN 340 Financial Crime (3-0-3). Examines the scale and causes of crime in financial systems. Covers statement fraud, insider trading, bribery and corruption, money laundering and internal control weaknesses. Addresses preventive and counter-fraud policy. Prerequisite: FIN 310.

FIN 350 Mergers and Acquisitions (3-0-3). Covers mergers and acquisitions along several dimensions: motivations of mergers, valuation of targets, estimating synergies, and other financial, strategic and legal aspects of mergers. Examines hostile mergers and international cross-border transactions. Prerequisite: FIN 310.

FIN 360 Behavioral Finance (3-0-3). Studies the impact of psychology and human emotions on investment and financial decision-making processes. Examines the validity of the traditional assumptions of market efficiency and individual rationality so pervasive in the finance literature. Prerequisite/concurrent: FIN 330.

FIN 365 Cryptocurrencies (3-0-3). Introduces virtual currencies and the financial cryptospace. Provides a critical analysis of cryptocurrency philosophy, technical attributes, potential challenges as well as the impact on financial markets. Includes an overview of the digital investment process from fiat currency to wallet security. Initiates participants to the Bloomberg suite of tools, blockchain technology, encryption, digital coin trading and cryptoassets as an alternative instrument for portfolio management. Prerequisite: FIN 201.

FIN 370 Fundamentals of Islamic Finance (3-0-3). Studies the origin and contemporary development of Islamic banking and finance. Examines case studies of the experience of Islamic finance in several countries. Explores current and future challenges to Islamic finance in an integrated world economy. Prerequisite: ECO 202 or FIN 201.

FIN 375 Trading and Financial Markets (3-0-3). Relies on market trading and computer intensive industry tools to integrate theory into practice. Covers a broad base of financial assets including equities, derivatives (options and futures contracts) and fixed income instruments. Centers around computerized simulations, interactive discussions, Excel programming, decision-making under pressure and research-based assignments. Focuses on the comprehensive application of acquired financial knowledge in a stimulating, fast-paced, real-world setting. Prerequisite: FIN 330.

FIN 382 Introduction to Financial Technology (3-0-3). Covers the history of innovation in the financial services sector and how technological progress shapes financial products. Focuses on the role of digital financial technology (fintech) in transforming business models and solutions in finance. Discusses the challenges associated with adopting and regulating fintech business. Prerequisites: FIN 201, ISA 201, MGT 201 and ENG 204.

FIN 389 Advanced Financial Modeling (3-0-3). Addresses computer skills in finance to support decision making by financial managers. Emphasizes software applications in the areas of time-value of money, capital budgeting, cost of capital, valuation and rates of return, risk, portfolio diversification and option hedging. Prerequisite: FIN 330.

FIN 401 International Finance (3-0-3). Covers financing of international trade and investment, foreign exchange markets and exchange rate determination, and balance of payments. Focuses on international financial management within the firm. Prerequisite: FIN 330.

FIN 402 Futures and Options (3-0-3). Covers conceptual and practical aspects of the functioning of speculative markets for various derivatives. Examines futures, options, swaps, and other products. Prerequisite: FIN 330.

FIN 404 Portfolio Management (3-0-3). Provides the theoretical and operative framework for portfolio and advanced investment management. Requires the application of portfolio models and concepts to live market data to perform analytical skills and evaluate equities, fixed income securities and other investments. Covers asset pricing, diversification and other financial models in detail. Prerequisite: FIN 330.

FIN 406 Investment Banking (3-0-3). Covers the role of investment banks, the functions performed by investment banking professionals, and the strategic issues confronting the industry. Prerequisites: FIN 330 and junior standing.

FIN 407 Alternative Investments (3-0-3). Examines the risk and return characteristics of alternative assets such as hedge funds, commodities, private equity and credit derivatives from a stand-alone perspective as well as within a portfolio context. Evaluates venture capital, leveraged buyouts and distressed debt as common forms of private equity. Prerequisite: FIN 330.

FIN 408 Entrepreneurial Finance (3-0-3). Focuses on strategies to identify and evaluate entrepreneurial opportunities. Covers opportunity recognition, business plan development, deal structuring, project financing, investment harvesting and exit strategies. Prerequisite: FIN 330.

FIN 430 Financial Forecasting (3-0-3). Illustrates how to use statistical models and technical analysis to forecast future movements of financial variables such as stock prices, exchange rates and interest rates. Prerequisite: FIN 330.

FIN 440 Asset Valuation (3-0-3). Covers concepts and techniques for analyzing financial decisions and asset valuation. Focuses on valuation techniques for various asset classes, forecasting and estimation of free cash flow, estimating the cost of capital and real options. Addresses valuation as applied to single and multiple projects, individual businesses, subsidiaries and diversified companies. Considers discounted cash flows models, free cash flow to equity models and relative valuation. Prerequisites: FIN 310 and FIN 330.

FIN 450 Corporate Finance (3-0-3). Emphasizes an applied approach to corporate finance. Covers topics such as capital budgeting, corporate governance, mergers and acquisitions, capital structure, dividend policy, and short-term financial management, with a strong focus on real-world applications and decision making. Prerequisites: FIN 310 and FIN 330.

IEN Innovation and Entrepreneurship

IEN 301 Innovation and Entrepreneurship Mindset (3-0-3). Covers the design thinking process and entrepreneurship practices. Involves empathetic understanding of users, problem reframing, idea generation, prototyping, experimentation, lean-startup methods, go-to-market strategies, and pitching and presenting as an entrepreneur. Develops an innovation and entrepreneurship mindset imbued with sustainability and leadership principles to empower collaborative interdisciplinary teams. Prerequisite: sophomore II standing.

ISA Information Systems and Business Analytics

ISA 201 Fundamentals of Information Systems and Business Analytics (3-0-3). Builds an understanding of data and information as key organizational resources. Emphasizes data management through information technology, including database management systems, transaction processing systems, decision support systems, inter-organizational information systems and enterprise systems. Presents the principles of system design and project management. Highlights the significance of data-driven decision making through business analytics and data visualization. Introduces emerging technologies in the field such as virtual reality and artificial intelligence. Prerequisite/concurrent: WRI 102.

ISA 300 Data Communications and Networking (3-0-3). Provides a basic understanding of the technical and management aspects of business data communications and networking. Includes the following topics: telecommunications services, technology and policy; standards organizations that contribute to global telecommunications technology specification; signaling and switching; physical transmission media; wireless transmission services; network access and transmission methods; data network topologies and network access methods (e.g., Ethernet and ATM); network transmission methods (e.g., T-carriers, DSL and ISDN); data network connectivity; and networking in open source environments. Prerequisites: ISA 201 and WRI 102.

ISA 301 Fundamentals of Database Management (3-0-3). Covers information as an organizational resource. Addresses the beginning technical, business and application development issues associated with managing and using an organization's data resources. Employing SQL as the database language, the course covers organizational data management, data analysis and modeling with the entity relationship model, database design with SQL, normalization and the relational model. Prerequisites: ISA 201 and WRI 102.

ISA 303 Introduction to Systems Analysis and Design (3-0-3). Examines traditional analysis, logical design through a data flow analysis and the system development life cycle approach. Covers methods for structured analysis and design. Addresses data structures, definitions and normalization. Focuses on the use of various tools associated with systems analysis. Prerequisite: ISA 301 or CMP 320.

ISA 305 E-Commerce (3-0-3). (Equivalent to MKT 303). Examines how the Internet and the World Wide Web are used for marketing and business purposes. Covers well-established companies based in the United Arab Emirates that have established a marketing presence on the Internet. Projects include building a website to market a specific product and establishing a simulated business on the Internet. Prerequisites: ISA 201 and MKT 201.

ISA 321 Object-Oriented Programming for Business Applications (3-0-3). Introduces programming concepts such as variables, control structures and arrays, as well as object-oriented programming concepts such as methods, classes, objects and inheritance. Applies these concepts to solve business problems by designing graphical user interfaces in applications, applets and mobile apps. Prerequisite: ISA 201.

ISA 363 Digital Security (3-0-3). Covers the essentials of securing information in organizations. Examines concepts and mechanisms related to security protocols, cryptography, information ethics, physical protection and biometric security applications. Addresses the economic consequences and business aspects of digital security. Prerequisite: ISA 201.

ISA 377 Data Visualization for Business (3-0-3). Explores the role of visualization of quantitative and qualitative data to facilitate managerial decision making. Integrates theories of visual perception and design with knowledge of graphical descriptive statistics. Addresses exploratory and explanatory visualizations. Covers methods of accessing and analyzing data to derive insights, draw conclusions and communicate findings. Prerequisites: ISA 201, MGT 201, MKT 201, and any one of QBA 201, NGN 211, STA 201 or STA 202.

ISA 383 Python for Business (3-0-3). Covers Python programming foundations, application development and integration with business operations. Focuses on hands-on issues in programming for analytics which includes accessing data, creating informative data graphics, writing functions, debugging, organizing and commenting code. Prerequisite: ISA 201.

ISA 388 Business Analytics (3-0-3). Covers business analytics concepts, methods, tools and applications. Examines how businesses utilize analytic models to analyze large datasets and make informed business decisions. Prerequisites: ISA 201, and any one of QBA 201, NGN 211, STA 201 or STA 202.

ISA 405 Information Systems Strategy (3-0-3). This is the capstone course in ISA. Discusses strategic IS issues, including planning IT infrastructures and architectures, business process reengineering, supply chain management, enterprise computing and systems integration. Covers emerging issues such as e-government and cyber ethics. Prerequisites: ISA 303 or COE 420, and senior standing.

MGT Management

MGT 201 Fundamentals of Management (3-0-3). Surveys the basic concepts and ideas of organizational behavior and the various functions and activities of the manager through global perspective. Includes the following topics: plans, goals, decision making, change, motivation, human resources, ethics and social responsibility, groups and teams, organization design, leadership and control. Prerequisite/concurrent: WRI 102.

MGT 300 Management of Public Organizations (3-0-3). Introduces the challenges and problems of management in public organizations, including the need for effective leadership, appropriate motivational techniques and various communication styles. Positions the public agency in an environment of competing interests, politics, power relations and disjointed policy processes. Explores current trends in balancing the need for efficiency with a desire to be responsive to the needs of the public. Considers alternative perspectives on the role of public administrators. Prerequisite: MGT 201; prerequisite/concurrent: ENG 203 or ENG 204.

MGT 301 Organizational Behavior (3-0-3). Focuses on human behavior in organizations by using current management theory and research to examine the factors that influence individual and group performance. Covers perception, personality, attitudes, values, motivation, decision making, leadership, power and politics, conflict and negotiation, groups and culture. Prerequisite: MGT 201; prerequisite/concurrent: ENG 203 or ENG 204.

MGT 302 Managing Human Resources (3-0-3). Examines the foundations, functions and activities involved in the managing of human resources, striking a balance between current theory and practice. Includes the following topics: personnel planning, recruitment and selection, policy and procedures, performance appraisal, compensation and benefits, training, safety and industrial relations. Prerequisites: MGT 201 and ENG 204.

MGT 303 Management and Leadership Development (3-0-3). Focuses on the necessary skills and abilities of the successful leader and manager. Introduces success factors and addresses the assessment and development of managerial and leadership skills throughout the course. Prerequisites: MGT 201 and ENG 204.

MGT 304 Performance Management (3-0-3). Presents performance management as an ongoing process that attempts to match employee contributions with organizational goals and strategies. Provides a theoretical and practical understanding of performance management issues. Addresses factors that have an impact on performance and the actions that can improve it. Analyses organizational, group and individual-level performance in complex contemporary organizations. Examines the specific challenges of performance management in private and public organizations. Prerequisite: MGT 201.

MGT 305 International Business (3-0-3). Examines the nature and scope of international trade and investment, international institutions, the international monetary system and exchange markets and some of the major issues involved in the functional aspects of international business and management. Prerequisites: MGT 201, and ENG 203 or ENG 204.

MGT 306 Cross-Cultural Management (3-0-3). Introduces culture as an important variable in international management and examines its impact on organizations, strategy, negotiations, management of human capital, leadership, team building and ethics. Applies a metaphor approach to explore key differences among cultures and examine their relevance for international management practice. Prerequisite: MGT 301.

MGT 310 Fundamentals of Family Business (3-0-3). Introduces the unique challenges faced by family businesses and the potential solutions to these issues. Examines the characteristics that define family businesses and the potential risks and benefits these bring to family businesses in the UAE. Discusses issues such as family dynamics, generational gaps, leadership, the role of non-family members, governance and succession planning. Prerequisite: MGT 201; prerequisite/concurrent: ENG 204.

MGT 313 Managing Innovation and Change (3-0-3). Explores the importance of innovation to business success and considers current trends in technology, society, consumer expectations and the workforce. Examines strategies for enabling innovation and overcoming obstacles to change. Presents the concept of a learning organization in the context of transformational leadership. Prerequisite: MGT 201.

MGT 315 Enterprise Resource Planning (3-0-3). Introduces Enterprise Resource Planning (ERP) and the deployment and usage of ERP software. Examines the deployment and usage of ERP software and considers how ERP software links operations, marketing, finance, accounting, human resources and information technology into a cohesive framework. Not open to students who have completed INE 460. Prerequisites: MGT 201, ACC 201 and ISA 201, or EGM 361 or EGM 364 or INE 332. Registration fee applies.

MGT 316 Career Management (3-0-3). Provides a structured approach to making career choices and decisions and explores personal development opportunities to identify strengths, professional interests and values as a basis for career planning and management. Prerequisites: MGT 201, and ENG 203 or ENG 204.

MGT 317 Management for Sustainability (3-0-3). Examines the management of a company's financial, social and environmental risks, obligations and opportunities. Examines both the foundations of environmental protection as well as current management theory and research pertaining to social issues of sustainable management. Prerequisites: MGT 201, and ENG 203 or ENG 204.

MGT 320 Knowledge Dynamics in Organizations (3-0-3). Examines the concepts, issues, practices and perspectives related to knowledge dynamics in organizations. Covers contemporary importance of knowledge dynamics in organizations; perspectives on knowledge dynamics in organizations; managing of learning, unlearning and knowledge loss; and socio-cultural issues related to knowledge dynamics in organizations. Prerequisites: MGT 201 and WRI 102.

MGT 321 Women in Leadership (3-0-3). Introduces the skills and development necessary for female leaders to succeed in the today's environment. Examines the factors for leadership success in a multicultural, global environment and challenges students to assess and develop their own leadership potential. Provides a clear framework for identifying issues germane to female leadership in the 21st century. Prerequisites: MGT 201, and ENG 203 or ENG 204.

MGT 330 People Analytics (3-0-3). Provides an understanding of the key concepts of data analytics in the field of human resources. Measures and analyzes data to inform decisions related to the management of employees within an organization. Develops capacity to use data and analytical tools to address strategic human resources management challenges in organizations. Prerequisites: MGT 201; and QBA 201 or STA 201 or STA 202 or NGN 211.

MGT 345 Management Consulting (3-0-3). Provides the necessary skills to succeed as a management consultant. Equips students with the most updated consulting tools and techniques. Collects, analyzes and interprets data to formulate recommendations for clients. Familiarizes students with actual consulting assignments in the field. Offers networking opportunities with professionals in the consulting industry. Prerequisites: MGT 201 and junior standing.

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. Includes topics such as business ethical theory, ethical decision making, typical dilemmas and corporate social responsibility. Prerequisite: MGT 201; prerequisite/concurrent: ENG 203 or ENG 204.

MGT 380 Project Management (3-0-3). Examines the concepts and techniques of managing projects in service and manufacturing settings. Includes the following topics: project selection and evaluation, dynamics, motivation and evaluation of team members, scheduling, budgeting and closure. Prerequisites: ACC 202, ENG 204, FIN 201, ISA 201 and MGT 201.

MGT 403 Entrepreneurship (3-0-3). Focuses on the creation of new ventures: the people, the process and the dynamics. Includes topics such as 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. Requires the development of a viable business plan in the course. Prerequisites: ENG 204, and IEN 301 or all of FIN 201, MGT 201 and MKT 201.

MGT 404 Social Entrepreneurship (3-0-3). Covers key concepts related to social entrepreneurship. Addresses the development of a social entrepreneurship venture's business plan, distinctions between social and commercial entrepreneurship, opportunities for social entrepreneurship ventures, co-creating solutions with communities, analyzing social impact and defining an appropriate business model. Prerequisite: MGT 360.

MGT 406 Business Policy and Strategy (3-0-3). Applies the functional knowledge acquired in previous coursework to the analysis of strategic-level business problems and decisions. Uses business cases extensively to highlight the diversity and complexity of organizational environments and systems. Includes the following topics: missions and objectives; environmental analysis; formulating, implementing and assessing strategies and policies; and international, social and ethical issues. Prerequisites: business senior standing; FIN 201, ISA 201, MGT 201, MKT 201 and ENG 204.

MGT 450 Business Venture with Sheraa (3-0-3). Integrates practical hands-on activities, team collaboration, design sprints and mentorship to guide students through the entrepreneurial process, from idea generation to demonstrating a viable venture or launching a new business venture. Offers practical, hands-on training in creating, evaluating, developing and preparing to launch new business ventures. Develops students' ability to tackle challenges within the eco-system and process of business venture. Prerequisite/concurrent: MGT 403.

MKT Marketing

MKT 201 Fundamentals of Marketing (3-0-3). Introduces the societal marketing concept as a guide to develop marketing strategies in business and non-profit organizations within a global context. Focuses on analyzing consumer needs, market segmentation, new product development, pricing, distribution and integrated communication. Examines relationships among consumers, markets and business. Prerequisite: WRI 102.

MKT 301 Consumer Behavior (3-0-3). Combines theories from the fields of marketing, psychology, sociology and anthropology, to understand the psychological processes that characterize consumers' consumption experiences. Applies behavioral science theories to develop marketing strategies and persuasive mechanisms involved in

perception, attitude and behavioral changes. Prerequisite: MKT 201.

MKT 302 Marketing Research (3-0-3). Examines research tools used to help make marketing decisions. Teaches how to define research problems, to select projects and to analyze data. Requires the execution of a consumer survey as a major component of the course. Uses computer statistical packages to analyze surveys. Prerequisites: MKT 201, and any one of QBA 201, NGN 211, STA 201 or STA 202.

MKT 303 E-Commerce (3-0-3). (Equivalent to ISA 305). Examines how the Internet and the World Wide Web are used for marketing and business purposes. Covers well-established companies based in the United Arab Emirates that have established a marketing presence on the Internet. Projects include building a website to market a specific product and establishing a simulated business on the Internet. Prerequisites: MKT 201 and ISA 201.

MKT 305 Retail Marketing (3-0-3). Explores marketing in large and small retail institutions. Includes the following topics: retail strategy, store layout, buying, merchandising, pricing, promotion, inventory management, customer service, control, store image, trading area and location selection. Prerequisite: MKT 201.

MKT 307 Business to Business Marketing and Negotiations (3-0-3). Provides an in-depth understanding of the unique aspects of marketing in a business-to-business environment through the use of lectures, cases, guest speakers and media presentations. Focuses on organizational buying, buyer-seller relationships, market analysis and planning, demand and sales estimation and marketing-mix decisions. Considers a variety of business situations, such as marketing to manufacturers, other commercial organizations, government and institutions. Prerequisites: MKT 201 and ENG 204.

MKT 309 Global Marketing (3-0-3). Focuses on the analysis of environmental forces affecting international marketing decisions, selection of global target markets, and the design and development of global marketing plans. Covers issues and challenges inherent in the formulation and implementation of global marketing strategies and tactics. Considers the application of standardization and adaptation marketing strategies. Prerequisites: MKT 201 and ENG 204.

MKT 310 Marketing Communications (3-0-3). Focuses the design and management of integrated marketing communications campaigns to promote products and services. Examines promotional tools such as advertising, public relations, consumer and trade promotions, sponsorships, direct marketing, interactive marketing and digital marketing; and the media for marketing communications campaigns. Explores methods for assessing marketing communications campaign effectiveness. Prerequisites: MKT 201, and ENG 203 or ENG 204.

MKT 354 Luxury Marketing (3-0-3). Studies the meaning of luxury and the demands and challenges faced by marketers in this sector. Examines business intelligence, environmental trends, branding, communications, e-commerce, sustainability and ethics in luxury through readings and cases for practical application and experiential learning. Introduces leaders of the luxury industry in the Middle East. Illustrates the wide variety of career opportunities available in the luxury industry and related fields. Prerequisites: MKT 201, and ENG 203 or ENG 204.

MKT 360 Digital Marketing (3-0-3). Provides a theoretical and practical understanding of digital marketing. Presents marketing concepts for an online world through readings, lectures and the use of interactive online tools. Practically applies the concepts in course projects and real-world analyses of local businesses in order to develop or improve digital marketing for the business. Illustrates the potential for digital entrepreneurship in both existing and new businesses. Prerequisites: MKT 201, and ENG 203 or ENG 204.

MKT 365 Services Marketing (3-0-3). Examines service-related issues, practice and strategy in business organizations. Includes the following topics: marketing analysis of service quality, service gaps, consumer expectations, service delivery strategies and customer relationship management. Builds on marketing concepts from other courses and applies them specifically to service industry settings. Prerequisite: MKT 201.

MKT 370 Brand Management (3-0-3). Introduces the steps involved in building strong brands and maximizing the value of existing brands. Examines a framework for understanding when and why consumers care about brands and introduces tools for measuring brand equity. Presents the business process of mission and strategy creation through brand and identity development and execution, and reinforces the concepts through readings, case studies and two course projects for practical applications and experiential learning. Prerequisite: MKT 201.

MKT 372 Tourism Destination Marketing (3-0-3). Addresses how local government authorities responsible for tourism develop and market tourism clusters in order to appeal to consumers in high-potential feeder markets. Explores how executives in privately owned destinations and tourism service organizations identify profitable markets and create promotional appeals based on an understanding of shifting social values and lifestyles. Examines the role that consumer thought processes play in evaluating and selecting destinations. Prerequisites: MKT 201 and ENG 204.

MKT 375 Event Marketing (3-0-3). Provides an in-depth understanding of the various tools and techniques in event marketing and the roles they play in the firm's communication strategy. Employs foundational event marketing concepts to examine event marketing cases in both public and private contexts. Prerequisites: MKT 201, and ENG 203 or ENG 204.

MKT 381 Fashion Marketing (3-0-3). Provides a theoretical and practical understanding of product development, pricing, distribution and communication in the fashion industry. Presents marketing concepts such as segmentation, targeting and positioning in fashion through readings, case studies, videos and a course project for practical application and experiential learning. Introduces leaders of the fashion industry in the Middle East. Examines the wide variety of career opportunities available in the fashion industry and related fields. Prerequisites: MKT 201, and ENG 203 or ENG 204.

MKT 383 New Product Development (3-0-3). Provides a detailed, theoretical and applied creative approach to the processes underlying new product development from both the consumer's and firm's perspective. Includes an in-depth understanding of consumer value perceptions and needs as applied to the innovation process, from product planning and design, business assessment, brand development and positioning, and market testing, through to successful product launch and commercialization in the marketplace. Examines new product and service development within various business settings. Prerequisites: MKT 201, and ENG 203 or ENG 204.

MKT 401 Marketing Strategy (3-0-3). Reinforces marketing concepts through case studies and class discussion. Focuses on solving current market issues using relevant strategic marketing frameworks. Requires the development of a strategic marketing plan for an outside organization. Prerequisites: MKT 301 and senior standing.

MKT 405 Luxury Brand Management (3-0-3). Provides a theoretical and practical understanding of product development, pricing, accessibility (distribution) and communication when seeking to gain access to consumers in luxury industries. Presents and reinforces new luxury business models grounded in anti-laws of marketing through readings, case studies and a course project for

practical application and experiential learning. Introduces leaders of the luxury industry in the Middle East. Illustrates the wide variety of career opportunities available in the luxury industry and related fields. Prerequisites: MKT 201 and senior standing.

QBA Quantitative Business Analysis

QBA 201 Quantitative Business Analysis (3-0-3). Covers descriptive and inferential statistics with emphasis on business applications and the use of software. Examines the elements of quantitative decisions and the characteristics of business data. Discusses probability, population and sampling distributions, measures and tests of association, and point and interval estimation. Introduces hypothesis testing and linear models of causal inference. Not open to students who have completed NGN 211 or STA 201 or STA 202. Prerequisite: any AUS math placement test or exemption from the placement test, or any preparatory math course.

SCM Supply Chain Management

SCM 202 Operations Management (3-0-3). Introduces the basic principles, functions and concepts involved in the design, management and control of operations in contemporary organizations. Covers topics such as production planning, quality control and materials management, and stresses tools and techniques required to improve the efficiency, effectiveness and competitiveness of both service- and manufacturing-based organizations. Prerequisite: QBA 201 or NGN 211 or STA 201 or STA 202.

SCM 310 Management of the Supply Chain (3-0-3). Demonstrates the strategic importance of the supply chain and emphasizes the overall reach of supply chain management. Synthesizes supply chain management principles to deliver cost-effective customer service through integration of functional areas including marketing, information systems management and purchasing/procurement. Examines supply chain performance metrics and takes a closer look at identifying and managing suppliers and the role of purchasing. Considers issues such as strategic sourcing, supplier selection and development, collaborative planning, just-in-time, customer relationship management and enterprise resource planning. Prerequisite: SCM 202.

SCM 311 Logistics Management (3-0-3). Covers and applies the basic modeling and solution techniques for planning and executing the decisions in logistics and supply chain management. Uses optimization and simulation techniques to extend the understanding of planning, organizing, operating and controlling the supply chain operations. Brings together the principles of logistics management to deliver cost-effective customer service through the integration of transportation, inventory management and materials handling. Examines inbound (purchasing and materials management) and outbound (demand management and customer service) logistics, inventory management, warehousing, transportation systems and preliminary concepts in logistics network design. Prerequisite: SCM 202.

SCM 345 Procurement Management (3-0-3). Introduces the basic principles, functions and concepts involved in the strategic and tactical aspects of procurement and supply management. Covers topics such as supplier evaluation and selection, contract management, negotiation, and supplier development in manufacturing and service industries. Discusses key challenges, opportunities and trends in global sourcing. Prerequisite: SCM 202.

SCM 355 Supply Chain Finance (3-0-3). Introduces the basic principles, functions and concepts involved in the design, management and control of supply chain financing mechanisms. Covers topics such as capital budgeting, real options and financial risk management, and stresses tools and techniques required to improve the financial performance of global supply chains. Prerequisites: SCM 202 and FIN 201.

SCM 365 Supply Chain Quality Management (3-0-3). Explores the principles, functions and concepts of quality management within the framework of supply chain management. Covers topics such as the history, theory, perspectives and definitions of quality, international quality standards, the voice of the customer and market, and integrating quality into all aspects of the supply chain. Prerequisite: SCM 202.

SCM 375 Managing Service Supply Chain (3-0-3). Introduces the basic principles, functions and concepts involved in the design, management and control of service supply chains. Covers topics such as new service development, the service encounter, supporting facilities, service supply chains, capacity, queueing, yield management and more. Prerequisite: SCM 202.

SCM 385 Digital Supply Chain Transformation (3-0-3). Introduces and discusses technology drivers and trends that are transforming supply chains, including the Internet of Things (IoT), Industry 4.0, big data analytics (BDA), blockchain, artificial intelligence (AI) and machine learning (ML), digital twins, 3D printing and cybersecurity. Discusses the processes, opportunities and challenges of digital transformation in organizations and across supply chains. Prerequisite: ISA 201 and SCM 202.

SCM 386 Global Transportation and Distribution (3-0-3). Discusses the role of transportation systems and their modal components in domestic and global supply chains. Emphasizes intermodal transportation, modal characteristics, cross border processes and the changes occurring in the industry such as the emergence of third-party logistics providers, security and geopolitical challenges, use of technology and climate change. Covers key distribution concepts in relation to warehouse management and demand fulfilment. Prerequisite: SCM 202.

SCM 415 Supply Chain Risk Management (3-0-3). Introduces the basic principles, functions and concepts involved in the identification, assessment and management of supply chain risks. Covers topics such as risk matrices, balanced scorecard, supply chain risk simulation and stresses tools and techniques required to both assess and manage the risk exposure of global supply chains. Prerequisites: SCM 202 and senior standing.

SCM 420 Sustainable Supply Chain Strategies (3-0-3). Explores the concept of sustainable supply chain management, a holistic strategic approach focused on minimizing environmental-, risk- and waste-related costs in order to reduce the environmental impact of business while increasing supply continuity, protecting reputations, creating innovative new partnerships, reducing supply chain costs and winning new business. Prerequisites: SCM 202 and senior standing.

Independent Study

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

Students are allowed to take one independent study. A second independent study could be approved by the student's associate dean for graduation purposes only.

Independent Course (1 to 4 credit hours). An existing course offered in an independent study format. The course is coded using the course number in the catalog. Approved special topic courses can be offered in an independent course format.

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

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

Directed Study (1 to 4 credit hours). An investigation under faculty supervision beyond the scope of existing courses. Prerequisites: minimum CGPA of 3.00, junior II standing and consent of the instructor.

Directed study courses are numbered as 396 or 496 courses. The three-letter course prefix reflects the field of study of the course (e.g., directed study courses in accounting are coded as ACC 396 or ACC 496).

For more details on independent study, please refer to Registration in Independent Study Courses in the Academic Policies and Regulations section of this catalog.

Special Topic Courses

Special Topic (1 to 4 credit hours). Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: topic specific. Lab/Tech fee may apply.

Special topic courses are numbered as 194, 294, 394 or 494 courses. The three-letter course prefix reflects the field of study of the course.

Special topic courses at the 300 level require sophomore standing or above; 400-level special topic courses are restricted to junior standing and above.

Special topic courses in accounting are restricted to students in accounting and finance.

Descriptions of particular special topic courses are made available in the school during registration.

Interdisciplinary Study Courses

Interdisciplinary study (IDS) courses provide opportunities for students to benefit from collaboration by faculty from a range of disciplines. Courses with an IDS course code are normally co-taught by two or more faculty members and focus on topics beyond those offered in existing courses.

IDS 220 Sustainable Development (3-0-3). Covers the concepts, principles and applications of sustainable development. Examines the challenges of sustainable development and the role of human intervention on the protection of the environment. Explores the environmental, economic, social and cultural aspects of sustainable development. Covers applications of sustainable development in the built environment, sustainable cities and infrastructure, water and energy management, and resilient infrastructure. Addresses balancing environmental, economic and social priorities. Prerequisite: WRI 102.

Special Topic Courses

IDS Special Topic (1 to 4 credit hours). Presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. Can be repeated for credit. Prerequisites: topic specific. Lab/Tech fee may apply.

IDS special topic courses are numbered as 194, 294, 394 or 494 courses.

IDS special topic courses at the 300 level require sophomore standing or above; 400-level IDS special topic courses are restricted to junior standing and above.

Descriptions of particular IDS courses are made available during registration.

Full-Time Faculty

The following pages list the full-time AUS faculty members with their terminal degrees, the conferring institution, the AUS department they are members of, as well as administrative positions they hold in addition to their faculty title. This information is also available at www.aus.edu/faculty-hub.

For details on the research achievements, research interests and experience of full-time AUS faculty members, visit www.aus.edu/research.

A

Abdalla, Jamaleldin, PhD, University of California at Berkeley, 1989; Professor in Civil Engineering

Abdallah, Abed Al-Nasser, PhD, University of Lancaster, 2004; Professor in Accounting and Information Systems and Head, Department of Accounting and Information Systems

Abdelfatah, Akmal, PhD, University of Texas at Austin, 1999; Professor in Civil Engineering (on sabbatical Fall 2026)

Abdelgawad, Mohamed, PhD, University of Toronto, 2009; Associate Professor in Mechanical Engineering

Abdel-Hafez, Mamoun, PhD, University of California at Los Angeles, 2003; Professor in Mechanical Engineering; Head, Department of Mechanical Engineering and MTR Program Academic Coordinator

Abdel-Jabbar, Nabil, PhD, University of Michigan, 1996; Professor in Chemical and Biological Engineering

Abdel Naby, Shahin, PhD, Western Michigan University, 2010; Assistant Professor in Physics

Abed, Farid, PhD, Louisiana State University, 2005; Professor in Civil Engineering and Dana Gas Endowed Chair

Abouelasaad, Shaymaa, MS, American University of Sharjah, 2025; Visiting Instructor in English

Abouleish, Mohamed Yehia, PhD, Tennessee Technological University, 2003; Professor in Biology, Chemistry and Environmental Sciences

Abu Al-Foul, Bassam, PhD, University of Utah, 1994; Professor in Economics

Abualrub, Taher, PhD, University of Iowa, 1998; Professor in Mathematics and Statistics

Abukhaled, Marwan, PhD, Texas Tech University, 1995; Professor in Mathematics and Statistics

Abulbasal, Rana, PhD, Utah State University, 2023; Assistant Professor in International Studies

Abu-Nabah, Bassam, PhD, University of Cincinnati, 2007; Professor in Mechanical Engineering

Abuomar, Osama, PhD, Mississippi State University, 2014; Visiting Professor in Computer Science and Engineering

Aburas, Reham, PhD, Purdue University, 2024; Assistant Professor in Computer Science and Engineering

Abu-Rukba, Ra'afat, PhD, Western University, 2013; Associate Professor in Computer Science and Engineering

Abusalim, Alaanoud, PhD, University of Lancaster, 2023; Assistant Professor in English

Abu-Yousef, Imad, PhD, McGill University, 1996; Professor in Biology, Chemistry and Environmental Sciences

Abuzaid, Wael, PhD, University of Illinois, 2012; Associate Professor in Mechanical Engineering

Agha, Albert, C. Phil, University of California, Los Angeles, 2017; Associate Professor in Performing Arts

Aghasi, Maya, PhD, University of Wisconsin Madison, 2012; Associate Professor in English

Aguir, Iness, PhD, University of Texas at San Antonio, 2013; Associate Professor in Finance

Ahmad, Norita, PhD, Rensselaer Polytechnic Institute, 2001; Professor in Accounting and Information Systems; Director, Center for Innovation in Teaching and Learning

Ahmed, Ahmed, PhD, City University of Hong Kong, 2023; Assistant Professor in Industrial Engineering

Ahmed, Khawlah, PhD, State University of New York at Buffalo, 1998; Professor in English

Ahmed, Vian, PhD, Loughborough University, 2000; Professor in Industrial Engineering

Ajšić, Adnan, PhD, Northern Arizona University, 2015; Associate Professor in English

Al-Ahmad, Bilal, PhD, North Dakota State University; 2015, Visiting Associate Professor in Computer Science and Engineering

Alaleeli, Sara, PhD, Michigan State University, 2014; Associate Professor in English

Al-Ali, Sebah, PhD, University of Lancaster, 2022; Assistant Professor in English

Al-Ani, Hala, MDes, University of Illinois at Chicago, 2016; Associate Professor in Art and Design (on leave Fall 2026)

Al-Asheh, Sameer, PhD, University of Ottawa, 1997; Professor in Chemical and Biological Engineering and MSBME Academic Coordinator

Al-Assadi, Wesam, MA, American University of Sharjah, 2004; Instructor in Arabic and Translation Studies

Al-Attar, Mariam, PhD, University of Leeds, 2008; Senior Lecturer in Arabic and Translation Studies

Al Balawi, Ramah, PhD, University of Illinois at Chicago, 2022; Assistant Professor in Accounting and Information Systems

Albasha, Lutfi, PhD, University of Leeds, 1995; Professor in Electrical Engineering

Al Deaibes, Mutasim, PhD, University of Manitoba, 2016; Assistant Professor of Practice in English

Alhajri, Mohamed, PhD, Massachusetts Institute of Technology, 2023; Assistant Professor in Computer Science and Engineering

AlHamaydeh, Mohamed, PhD, University of Southern California, 2005; Professor in Civil Engineering

Ali, Ahmed, PhD, University of Durham, 1999; Professor in Arabic and Translation Studies; Head, Department of Arabic and Translation Studies and MATI Program Academic Coordinator

Ali, Rami, PhD, Kansas State University, 1993; Professor of Practice in Physics

Ali, Tarig, PhD, The Ohio State University, 2003; Professor in Civil Engineering

Al-Issa, Ahmad, PhD, Indiana University of Pennsylvania, 1998; Professor in English and Associate Dean for Undergraduate Affairs, College of Arts and Sciences

Aljanaideh, Khaled, PhD, University of Michigan-Ann Arbor, 2015; Visiting Associate Professor in Mechanical Engineering

Alkaabneh, Faisal, PhD, Cornell University, 2020; Assistant Professor in Industrial Engineering

Al-Kaisi, Meis, PhD, University of London, 2006; Associate Professor in Arabic and Translation Studies

Al-Khader, Maen, PhD, Illinois Institute of Technology, 2008; Professor in Mechanical Engineering

AlKhazali, Osamah, PhD, University of Memphis, 1997; Professor in Finance

Ally, Shuaib, PhD, University of Toronto, 2022; Assistant Professor in Arabic and Translation Studies

Al-Najjar, Abeer, PhD, University of Edinburgh, 2003; Professor in Media Communication

Alnaser, Ali Sami, PhD, Western Michigan University, 2002; Professor in Physics; Associate Vice Chancellor, Research Infrastructure; and PhD MSE Program Academic Coordinator

Al-Nashash, Hasan, PhD, Kent University, 1988; Professor in Electrical Engineering, and PhD-BSBE Program Academic Coordinator

Alnuaimi, Tufool, PhD, Imperial College London, 2012; Professor of Practice in Industrial Engineering

Alobaidi, Ghada, PhD, University of Western Ontario, 2000; Associate Professor in Mathematics and Statistics

Alotaibi, Eid, PhD, Rutgers University, 2021; Assistant Professor in Accounting and Information Systems

Al-Othman, Amani, PhD, University of Ottawa, 2012; Professor in Chemical and Biological Engineering and Petrofac Research Chair in Renewable Energy

Aloul, Fadi, PhD, University of Michigan, 2003; Professor in Computer Science and Engineering and Dean, College of Engineering

Al-Sayah, Mohamed, PhD, University of Alberta, 2002; Professor in Biology, Chemistry and Environmental Sciences

Alshraideh, Hussam, PhD, The Pennsylvania State University, 2011; Professor in Industrial Engineering

Al-Tarawneh, Moaz, PhD, Florida State University, 2009; Associate Professor in Physics

Alzaatreh, Ayman, PhD, Central Michigan University, 2011; Professor in Mathematics and Statistics

Amer, Ihab, PhD, University of Calgary, 2007; Professor of Practice in Computer Science and Engineering

Anabtawi, Mahmoud, PhD, University of Texas, 1998; Professor in Mathematics and Statistics and Dean, College of Arts and Sciences

Aqeel, Mohammed Taher, MA, Jawaharlal Nehru and Delhi University, 1993; Professor of Practice in Civil Engineering

Arafah, Mazen, PhD, Cleveland State University, 2001; Visiting Professor in Industrial Engineering

Arif, Omar, PhD, Georgia Institute of Technology, 2010; Professor of Practice in Computer Science and Engineering

Arzaghi, Mohammad, PhD, Brown University, 2005; Professor in Economics

As'ad, Rami, PhD, Concordia University, 2011; Associate Professor in Industrial Engineering

Asa'd, Randa, PhD, University of Cincinnati, 2012; Associate Professor in Physics (on leave Fall 2026)

Aslan, Zaki, PhD, University College London, 2008; Professor of Practice in Architecture

Atabay, Serter, PhD, University of Birmingham, 2001; Professor in Civil Engineering

Attom, Mousa, PhD, Kansas State University, 1989; Professor in Civil Engineering

Audi, Diana, MS, American University of Beirut, 2005; Senior Instructor in Mathematics and Statistics

Aveyard, Mark, PhD, Florida State University, 2007; Associate Professor in Psychology

Awad, Mahmoud, PhD, Wayne State University, 2005; Professor in Industrial Engineering

Awwad, Diala, MS, Deakin University, 2008; Senior Instructor in English

Awwad, Mohamed, PhD, University of Central Florida, 2015; Visiting Associate Professor in Industrial Engineering

Ayish, Mohammad, PhD, University of Minnesota, 1986; Professor in Media Communication and Interim Head, Department of Media Communication

B

Baber, Hasnan, PhD, Woosang University, 2022; Assistant Professor in Management, Strategy and Entrepreneurship

Badawi, Ayman, PhD, University of North Texas, 1993; Professor in Mathematics and Statistics

Badran, Sammy, PhD, University of Kansas, 2018; Associate Professor in International Studies and Interim Director, Arab Studies and Islamic Civilizations Research Center

Bahloul, Raja, MS, Cornell University, 1994; Senior Instructor in English

Bahroun, Zied, PhD, University of Franche-Comté, Besancon, 2000; Professor in Industrial Engineering

Baquerizas, Amparo, MS, Francisco de Vitoria University, 2013; Assistant Professor in Art and Design

Barakji, Fatima, PhD, Wayne State University, 2023; Assistant Professor in Media Communication

Bartholomew, Aaron, PhD, College of William and Mary, 2001; Professor in Biology, Chemistry and Environmental Sciences

Basco, Rodrigo, PhD, Universidad Complutense de Madrid, 2005; Professor in Management, Strategy and Entrepreneurship and Sheikh Saoud bin Khalid bin Khalid Al-Qassimi Chair in Family Business

Bejarano Rodriguez, Ivonne, PhD, University of Puerto Rico, 2013; Associate Professor in Biology, Chemistry and Environmental Sciences

Bejtic, Zinka, PhD, International University of Sarajevo, 2018; Professor in Art and Design and Head, Department of Art and Design

Belhamadia, Youssef, PhD, Laval University, 2004; Associate Professor in Mathematics and Statistics

Belkhodja, Omar, PhD, Laval University, 2006; Professor in Management, Strategy and Entrepreneurship

BenDaya, Mohamed, PhD, Georgia Tech USA, 1998; Professor in Industrial Engineering

Bilbeisi, Rana, PhD, University of Cambridge, 2013; Assistant Professor in Biology, Chemistry and Environmental Sciences

Bilikozen, Neslihan, PhD, University of Exeter, 2016; Assistant Professor in English

Bocchese, Marco, PhD, Northwestern University, 2018; Visiting Assistant Professor in International Studies

Bodolica, Virginia, PhD, HEC Montreal Business School, 2006; Professor in Management, Strategy and Entrepreneurship; Head, Department of Management, Strategy and Entrepreneurship, and Said T. Khoury Chair in Leadership Studies

Boisvert, Jean, PhD, Macquarie Graduate School of Management, 2007; Professor in Marketing and Supply Chain Management

Borio, Geraldine, PhD, RMIT University, 2020; Visiting Assistant Professor in Architecture

Boubakri, Narjess, PhD, Laval University, 2000; Professor in Finance and Dean, School of Business Administration

Bou-Mehdi, Randa, MA, American University of Sharjah, 2010; Senior Instructor in English

Brodtkorb, Tor, LLM, University of Leicester, 2008; Assistant Professor in Management, Strategy and Entrepreneurship

Brown, Bentley, PhD, University of Colorado, 2022; Assistant Professor in Media Communication

Bryan, Christopher, PhD, University of Limerick, 2020; Assistant Professor in Psychology

Bühring, Jörn, PhD, Swinburne University of Technology, 2015; Visiting Assistant Professor in Art and Design

C

Cali, Umit, PhD, University of Kassel, 2010; Professor in Electrical Engineering and Director, Artificial Intelligence, Smart Infrastructure and Robotics Research Center

Cardenas, Andres, PhD, Stanford University, 2008; Visiting Associate Professor in Mathematics and Statistics

Carlow, Jason, MArch, Yale University, 2002; Professor in Architecture and Head, Department of Architecture

Castillo Melo, Roberto, PhD, University of Kansas, 2015; Associate Professor in Architecture

Cerro, Camilo, MArch, Columbia University, 1997; Associate Professor in Architecture

Chan, Stephen, PhD, University of Manchester, 2016; Associate Professor in Mathematics and Statistics

Chathoth, Prakash, PhD, Virginia Polytechnic Institute and State University, 2002; Professor in Marketing and Supply Chain Management

Chazi, Abdelaziz, PhD, University of North Texas, 2004; Professor in Finance

Chebbi, Rachid, PhD, Colorado School of Mines, 1991; Professor in Chemical and Biological Engineering

Cheng, Peng, PhD, Lancaster University, 2020; Visiting Assistant Professor in Computer Science and Engineering

Chhetri, Rohan, PhD, University of Houston, 2023; Assistant Professor in English

Chiozza, Giacomo, PhD, Duke University, 2004; Professor in Political Studies and Sir Easa Saleh Al Gurg Professor in International Studies (on sabbatical Academic Year 2026–2027)

Christodoulides, George, PhD, University of Birmingham, 2016; Professor in Marketing and Supply Chain Management; Chalhoub Professor in Luxury Brand Management; and Associate Dean for Research and Innovation, School of Business Administration

Colistra, Joseph, MArch, University of Colorado,1995; Professor in Architecture and Dean, College of Architecture, Art and Design

Cotelioglu, Efe, PhD, University della Svizzera Italiana, 2021; Assistant Professor in Finance

Craven, Laurence, PhD, Oxford Brookes University, 2009; Senior Lecturer in English

Curabba, Brad, MAT, SIT Graduate Institute, 2006; Assistant Professor in English

Curiel, Igor, PhD, Kumamoto University, 1989; Professor of Practice in Architecture

D

Daghfous, Abdelkader, PhD, Pennsylvania State University, 1997; Professor in Marketing and Supply Chain Management and Head, Department of Marketing and Supply Chain Management

Dahdal, Suheil, PhD, University of Technology, Sydney, 2000; Professor in Media Communication and Deputy Director, Center for Entrepreneurship, Innovation and Sustainable Development (on sabbatical Spring 2027)

Dalibalta, Sarah, PhD, University of Leicester, 2008; Professor in Biology, Chemistry and Environmental Sciences

Dandridge, Damon, PhD, Michigan State University, 2020; Assistant Professor in Performing Arts

Daoud, Mohammad, PhD, University of Western Ontario, 2009; Professor of Practice in Computer Science and Engineering

Darras, Basil, PhD, University of Kentucky, 2008; Professor in Mechanical Engineering

Darwish, Naif, PhD, Oklahoma State University, 1991; Professor in Chemical and Biological Engineering

Darwish, Noora, PhD, University of Calgary, 2024; Assistant Professor in Chemical and Biological Engineering

Davis, Jessica Lauren, PhD, Kings College, 2022; Assistant Professor in International Studies

De Barros, Eric, PhD, University of Illinois at Urban Champaign, 2011; Associate Professor in English

Deng, Yang, PhD, City University of Hong Kong, 2025; Assistant Professor in Industrial Engineering

Dghaym, Dana, PhD, University of Southampton, 2017; Assistant Professor in Computer Science and Engineering

Dhaouadi, Rached, PhD, University of Minnesota, 1990; Professor in Electrical Engineering

Dhou, Salam, PhD, Virginia Commonwealth University, 2013; Associate Professor in Computer Engineering

Diki, Kamal, PhD, Politecnico di Milano, 2021; Assistant Professor in Mathematics and Statistics

Drobot, Sergii, PhD, Indiana University Bloomington, 2026; Assistant Professor in Economics

Duffy, Vincent, PhD, Purdue University West Lafayette, 1996; Visiting Professor in Industrial Engineering

Dweik, Waleed, PhD, University of Southern California, 2015; Visiting Associate Professor in Computer Science and Engineering

Dwivedi, Ashish, PhD, Indian Institute of Technology Delhi, 2020; Visiting Assistant Professor in Marketing and Supply Chain Management

E

Egilmez, Mehmet, PhD, University of Alberta, 2009; Professor in Physics and Director, Materials Research Center

El-Assadi, Ahmad, MBA, American University of Sharjah, 2009; Senior Instructor in Management, Strategy and Entrepreneurship

El Bakhour, Hoda, MA, American University of Beirut, 2010; Senior Instructor in English

Eleftheriou, Maria, PhD, University of Leicester, 2011; Associate Professor in English

El-Emam, Magdi, PhD, Queen's University, 2003; Professor in Civil Engineering

El-Fakih, Khaled, PhD, University of Ottawa, 2002; Professor in Computer Science and Engineering

El-Kadri, Oussama, PhD, Wayne State University, 2006; Professor in Biology, Chemistry and Environmental Sciences

El-Khatib, Sami, PhD, New Mexico State University, 2007; Professor in Physics

Elkhoury, Kamil, PhD, University of Lorraine, 2021; Assistant Professor in Chemical and Biological Engineering

El Mkaouar, Loubna, PhD, University of Westminster, 2014; Associate Professor in Media Communication

El Sabbah, Farah, PhD, University of Lancaster, 2019; Visiting Assistant Professor in English

El-Sakran, Tharwat, PhD, University of Bangor, 1990; Professor in English

El-Sayegh, Sameh, PhD, Texas A&M University, 1998; Professor in Civil Engineering; Head, Department of Civil Engineering; PhD-CEE Program Academic Coordinator; and MSCM Program Academic Coordinator

El Soussi, Amira, ED, University of Exeter, 2024; Assistant Professor in English

El-Tarhuni, Mohamed, PhD, Carleton University, 1997; Professor in Electrical Engineering; Vice Provost, Graduate Studies

Emam, Samir, PhD, Virginia Polytechnic Institute and State University, 2002; Professor in Mechanical Engineering

Emran, Bara, PhD, University of British Columbia, 2019; Assistant Professor in Electrical Engineering

Enache, Cristian, PhD, Laval University, 2005; Associate Professor in Mathematics and Statistics

F

Faiq, Said, PhD, Salford University, 1991; Professor in Arabic and Translation Studies (on sabbatical Spring 2027)

Farr, Marcus, MArch, Rice University, 2004; Associate Professor in Architecture

Fayyad, Jamil, PhD, University of British Columbia, 2023; Assistant Professor in Electrical Engineering

Filipović, Zlatan, MFA, Alfred University, 2001; Professor in Art and Design (on sabbatical Fall 2026)

Fredrick, Daniel, PhD, Texas Christian University, 2003; Associate Professor in English

G

Gahramanov, Emin, PhD, Colorado State University, 2007; Professor in Economics

Gaibulloev, Khusrav, PhD, University of Texas at Dallas, 2009; Professor in Economics

Gharib, Anastassia, PhD, Carleton University, 2023; Assistant Professor in Computer Science and Engineering

Ghazal, Abdallah, PhD, Concordia University, 2023; Visiting Assistant Professor in Mechanical Engineering

Gazley, Aaron, PhD, Victoria University, 2009; Professor in Marketing and Supply Chain Management

Genc, Ismail, PhD, Texas A&M University, 1999; Professor in Economics

Ghani, Usman, PhD, University of Exeter, 2013; Associate Professor in Arabic and Translation Studies

Ghedira, Mohamed, PhD, University of Quebec, 2002; Professor in Biology, Chemistry and Environmental Sciences and Director, Artificial Intelligence, Smart Infrastructure and Robotics Research Center

Ghommem, Mehdi, PhD, Virginia Polytechnic Institute and State University, 2011; Professor in Mechanical Engineering and Associate Dean for Research, Innovation and Outreach, College of Engineering

Gibbs, Joseph, PhD, Boston University, 1994; Professor in Media Communication

Gleason, Kimberley, PhD, Southern Illinois University, 1999; Professor in Finance

Golley, Nawar Al-Hassan, PhD, Nottingham University, 1994; Professor in English

Graham, Joseph, PhD, Loughborough University, 2015; Associate Professor in Art and Design

Greenier, Vincent, PhD, University of Auckland, 2018; Associate Professor in English

Griffin, James, PhD, University of London, 2004; Associate Professor in Mathematics and Statistics and Vice Provost for Undergraduate Affairs and Instruction

Grover, Himanshu, PhD, Texas A&M University, 2010; Associate Professor in Architecture, and MUP Program Academic Coordinator

Guessoum, Nidhal, PhD, University of California at San Diego, 1988; Professor in Physics and Sheikha Nama Majid Al Qassimi Endowed Chair in Education Across Disciplines (on sabbatical Spring 2027)

Gupta, Renu, PhD, Queen Mary University of London, 2024; Assistant Professor in Management, Strategy and Entrepreneurship

H

Hajdini, Ilir, PhD, University of Vienna, 2017; Assistant Professor in Management, Strategy and Entrepreneurship

Halloum, Samar, MArch, Yale University, 2022; Assistant Professor in Architecture

Hamade, Alaa, MBA, American University of Sharjah, 2010; Senior Instructor in Management, Strategy and Entrepreneurship

Hamati, Dalia, MS, Columbia University, 2011; Assistant Professor in Architecture

Hamdan, Bayan, PhD, University of Illinois at Urbana-Champaign, 2023; Assistant Professor in Industrial Engineering (on leave Fall 2026)

Hamdan, Mohammad, PhD, University of Cincinnati, 2003; Professor in Mechanical Engineering

Hamdan, Nasser, PhD, Middle East Technical University, 1993; Professor in Physics

Hamdy, Mahmoud, MDes, University of Illinois at Chicago, 2024; Visiting Assistant Professor in Art and Design

Hameed, Fazal, PhD, Karlsruhe Institute of Technology, 2015; Visiting Assistant Professor in Computer Science and Engineering

Hammedi, Wafa, PhD, Radboud University Nijmegen, 2010; Professor in Marketing and Supply Chain Management

Hammi, Oualid, PhD, University of Calgary, 2009; Professor in Electrical Engineering

Hammoud, Hania, PhD, University of Montreal, 2016; Visiting Assistant Professor in Management, Strategy and Entrepreneurship

Hanafy Ibrahim, Ahmed, PhD, University of Waterloo, 2023; Visiting Assistant Professor in Mechanical Engineering

Hao, Chen, PhD, University of Hong Kong, 2025; Visiting Assistant Professor in Civil Engineering

Hariga, Moncer, PhD, Cornell University, 1989; Professor in Industrial Engineering

Hasan, Ammar, PhD, Imperial College London, 2012; Professor of Practice in Electrical Engineering

Hassan, Mohamed, PhD, University of Waterloo, 2017; Associate Professor in Computer Science and Engineering

Hassan, Mohamed, PhD, University of Arizona, 2005; Professor in Electrical Engineering

Hassan, Said, PhD, University of California, Los Angeles, 2011; Assistant Professor in Arabic and Translation Studies

Hawa, Karen, CPA, Colorado State Board of Accountancy, 2005; Senior Instructor in Accounting and Information Systems

Hawileh, Rami, PhD, University of Wisconsin-Milwaukee, 2005; Professor in Civil Engineering and Riad T. Al Sadek Chair in Civil Engineering

Heintz, W. Eirik, MArch, Harvard University, 1994; Professor in Architecture

Hejjawi, Lina, PhD, American University of Sharjah, 2007; Assistant Professor in Performing Arts

Hermena, Ehab, PhD, University of Southampton, 2016; Associate Professor in Psychology

Highland, Kristen, PhD, New York University, 2015; Associate Professor in English and Head, Department of English

Hindy, Hania, MS, Savannah College, 2020; Assistant Professor in Art and Design (on leave Fall 2026)

Hong, Xin, PhD, Kent State University, 2021; Assistant Professor in Biology, Chemistry and Environmental Sciences

Horger, Christopher, MA, University of Arizona, 1992; Senior Instructor in English

Hughes, Michael, MArch, Princeton University, 1993; Professor in Architecture, and Associate Dean for Research and Strategic Initiatives, College of Architecture, Art and Design

Hudson, Paul, PhD, Canterbury Christ Church University, 2013; Assistant Professor in English

Hurley, Zoe, PhD, University of Lancaster, 2019; Associate Professor in Media Communication

Hussein, Dana, PhD, Carleton University, 2025; Assistant Professor in Computer Science and Engineering

Hussein, Noha, PhD, Virginia Polytechnic Institute and State University, 2005; Professor in Industrial Engineering

Husseini, Ghaleb, PhD, Brigham Young University, 2001; Professor in Chemical and Biological Engineering and Associate Vice Chancellor, Research

I

Ibrahim, Mahmoud, PhD, University of Mississippi, 2006; Associate Professor in Electrical Engineering

Ibrahim, Mohamed, PhD, University of Montreal, 2015; Visiting Assistant Professor in Computer Science and Engineering

Ibrahim, Riem, MFA, The University of Chicago, 2013; Associate Professor in Design

Imran, Muhammad, PhD, Sungkyunkwan University, 2020; Visiting Assistant Professor in Computer Science and Engineering

Inaim, Rawia, MA, Simon Fraser University, 2020; Visiting Instructor in English

Irscheid, Abdurrahman, PhD, Saarland University, 2025; Assistant Professor in Mechanical Engineering

Izwaini, Sattar, PhD, University of Manchester, 2004; Professor in Arabic and Translation Studies

J

Jacob, Mariam, MArch, Columbia University, 2024; Visiting Assistant Professor in Architecture

Jalilov, Almaz, PhD, University of Wisconsin-Madison, 2011; Assistant Professor in Biology, Chemistry and Environmental Sciences

Jang, Donghyeok, PhD, University of Oregon, 2022; Assistant Professor in Finance

Jaradat, Ameera, PhD, University of Arkansas, 2008; Visiting Associate Professor in Computer Science and Engineering

Jaradat, Mohammad, PhD, Texas A&M University, 2005; Professor in Mechanical Engineering

Jarrah, Abdul Salam, PhD, New Mexico State University, 2002; Professor in Mathematics and Statistics; Head, Department of Mathematics and Statistics; MSMTH Program Academic Coordinator; and PhD-MTH Program Academic Coordinator

Jarry-Bolduc, Gabriel, PhD, University of British Columbia, 2023; Assistant Professor in Mathematics and Statistics

Jones, Charles De Lay, MArch, Tulane University, 2021; Assistant Professor in Architecture

K

Kallel, Sadok, PhD, Stanford University, 1995; Professor in Mathematics and Statistics (on leave Fall 2026)

Kalo, Amar, MS, University of Michigan, 2014; Associate Professor in Architecture and Director, CAAD Labs

Kaltenbach, Christopher, PhD, RMIT University, 2019; Associate Professor in Art and Design

Kanan, Sofian, PhD, University of Maine, 2000; Professor in Biology, Chemistry and Environmental Sciences

Katodrytis, George, AADip, Architectural Association School of Architecture, 1985; Professor in Architecture

Katsos, John, JD, George Washington University, 2011; Professor in Management, Strategy and Entrepreneurship

Katsos, Kristina, MS, Georgetown University, 2010; Senior Instructor in International Studies

Kaya, Ilker, PhD, University of Georgia, 2009; Associate Professor in Economics (on sabbatical Spring 2027)

Kaya, Ozgur, PhD, University of Georgia, 2009; Professor in Economics

Khader, Basel, PhD, Ryerson University, 2018; Visiting Assistant Professor in Chemical and Biological Engineering

Khaldi, Bouthaina, PhD, Indiana University, 2008; Professor in Arabic and Translation Studies

Khalil, Reem, PhD, City University of New York, 2013; Associate Professor in Biology, Chemistry and Environmental Sciences

Khaliyarov, Alisher, PhD, The Ohio State University, 2021; Assistant Professor in International Studies

Khallaf, Ashraf, PhD, Florida Atlantic University, 2004; Professor in Accounting and Information Systems

Khallaf, Rana, PhD, Purdue University, 2016; Visiting Associate Professor in Civil Engineering

Khan, M. Sajid, PhD, University of Manchester, 2001; Professor in Marketing and Supply Chain Management

Khawaja, Ali, MBA, American University of Sharjah, 2004; Senior Instructor in Management, Strategy and Entrepreneurship

Kherfi, Samer, PhD, Simon Fraser University, 2002; Associate Professor in Economics and Associate Dean for Undergraduate Programs, School of Business Administration

Khizer, Abdul Mohi, PhD, Indian School of Business, 2022; Assistant Professor in Accounting and Information Systems

Khouyibaba, Saadia, PhD, Laval University, 1997; Senior Instructor in Mathematics and Statistics

Kim, Meehyun, PhD, Rutgers, the State University of New Jersey, 2025; Assistant Professor in Accounting and Information Systems

King, Jeffrey, PhD, University of Missouri, 2017; Associate Professor in International Studies

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Kirimhan, Destan, PhD, University of South Carolina, 2021; Assistant Professor in Finance

Klironomos, John, PhD, University of Waterloo, 1994; Professor in Biology, Chemistry and Environmental Sciences; Associate Dean for Research and Innovation, College of Arts and Sciences

Knott, David Lee, EdD, University of Exeter, 2020; Senior Instructor in English

Knuteson, Sandra, PhD, Clemson University, 2004; Senior Lecturer in Biology, Chemistry and Environmental Sciences

Kone, Noura, PhD, University of Texas at Arlington, 2026; Assistant Professor in Finance

Kucukalic, Lejla, PhD, University of Delaware, 2005; Associate Professor in English

L

Landolsi, Taha, PhD, University of Texas at Dallas, 1999; Professor in Computer Science and Engineering

Laursen, Tod A., PhD, Stanford University, 1992; Professor in Mechanical Engineering and Chancellor

Lazar, Omar, PhD, University of Paris-Est, 2013; Associate Professor in Mathematics and Statistics

Leduc, Guillaume, PhD, Carleton University, 1995; Associate Professor in Mathematics and Statistics

Lopes, Adrian, PhD, Cornell University, 2014; Associate Professor in Economics

Louhichi, Issam, PhD, University of Bordeaux 1, 2005; Associate Professor in Mathematics and Statistics

Lu, Bing, PhD, University of Illinois at Urbana-Champaign, 2012; Assistant Professor in Physics

M

Maalouf, Jamal, PhD, University of Alabama, 2014; Associate Professor in Management, Strategy and Entrepreneurship

Mahasneh, Amjad, PhD, Queen's University, 1999; Professor in Biology, Chemistry and Environmental Sciences

Majdalawieh, Amin, PhD, Dalhousie University, 2006; Professor in Biology, Chemistry and Environmental Sciences and Head, Department of Biology, Chemistry and Environmental Sciences

Makkawi, Yassir, PhD, Herriot-Watt University, 2004; Professor in Chemical and Biological Engineering

Makos, Andreas, MEng, University of the Aegean, 2017; Assistant Professor in Art and Design

Malaviya, Karna, PhD, University of California, 2026; Visiting Assistant Professor in Economics

March, Jessica, MS, University of Essex, 2000; Senior Instructor in English

Marchi Travares El Melo, Isabela, MFA, Virginia Commonwealth University, 2014; Associate Professor in Performing Arts

Mariano, Stefania, PhD, University of Molise, 2006; Professor in Management, Strategy and Entrepreneurship

Matay, Ali, MFA, Konstfack-University of Arts, Crafts and Design, 2008; Visiting Assistant Professor in Art and Design

McAllister, Brian, PhD, The Ohio State University, 2013; Associate Professor in English

McCarthy, Philip, PhD, University of Memphis, 2005; Associate Professor in English (on sabbatical Fall 2026)

Mertel, Kurt, PhD, Northwestern University, 2016; Associate Professor in International Studies

Mesanovic, Mujo, MS, Syracuse University, 2006; Senior Instructor in Mathematics and Statistics

Miller, Geoffrey, MFA, City University of Hong Kong, 2014; Senior Instructor in English

Mir, Hasan, PhD, University of Washington, 2005; Professor in Electrical Engineering

Mirzaei, Ali, PhD, Brunel University, 2013; Associate Professor in Finance

Mitchell, Kevin, MArch, University of Washington, 1996; Professor in Architecture; Trustee Professor

Mitra, Sreya, PhD, University of Wisconsin Madison, 2012; Associate Professor in Media Communication

Mohamed, Sanaa, PhD, University of Leeds, 2020; Visiting Assistant Professor in Electrical Engineering

Mohammad, Nadia, PhD, Wayne State University, 2019; Visiting Assistant Professor in English

Mohammad, Yara, PhD, Brunel University London, 2010; Visiting Assistant Professor in Accounting and Information Systems

Mokhtar, Ahmed, PhD, Concordia University, 1998; Professor in Architecture and Associate Dean for Undergraduate Affairs, College of Architecture, Art and Design

Montague, John, PhD, Trinity College Dublin, 2009; Associate Professor in Architecture

Mortula, MD Maruf, PhD, University of Dalhousie, 2006; Professor in Civil Engineering

Mrad, Mona, PhD, the University of Manchester, 2015; Associate Professor in Marketing and Supply Chain Management

Mukherjee, Sujoy, PhD, George Washington University, 2019; Assistant Professor in Mathematics and Statistics

Mukhin, Nikolai, PhD, University of Hong Kong, 2022; Assistant Professor in International Studies

Mumladze, Tinatin, PhD, American University, 2025; Assistant Professor in Economics

Munday, Susan, MPhil, University of Glasgow, 2002; Assistant Professor of Practice in English

Murphy, Claire, MS, Sheffield Hallam University, 2001; Senior Instructor in English

N

Naddaf, Nazaneen, MA, The Basel School of Design, 2018; Assistant Professor in Art and Design

Nahm, Peter, PhD, Texas A&M University, 2024; Assistant Professor in Management, Strategy and Entrepreneurship

Najjar, Jasmina, MA, University of London, 2002; Senior Instructor in English

Nam, Kichan, PhD, State University of New York at Buffalo, 1995; Professor in Accounting and Information Systems

Nancarrow, Paul Damian, PhD, Queen's University Belfast, 2005; Professor in Chemical and Biological Engineering and Interim Head, Department of Chemical and Biological Engineering

Nashef, Hania, PhD, University of Kent, 2008; Professor in Media Communication

Ndiaye, Malick, PhD, University of Burgundy, 1986; Professor in Industrial Engineering

Nofal, Samer, PhD, University of Liverpool, 2013; Visiting Associate Professor in Computer Science and Engineering

Nolte, Laure, MArch, Dalhousie University, 2022; Visiting Assistant Professor in Architecture

Nsiri, Imed, PhD, Indiana University, 2010; Associate Professor in Arabic and Translation Studies

O

O'Connell, Chasity, PhD, California Southern University, 2019; Assistant Professor of Practice in Psychology

Oliver, Maria, MArch, Columbia University, 1990; Assistant Professor in Architecture

Onley, James, DPhil, University of Oxford, 2001; Professor in International Studies and The Ahmed Seddiqi Chair in Gulf and Arab Studies

Onuklu, Atilla, PhD, Temple University, 2021; Assistant Professor in Management, Strategy and Entrepreneurship

Orhan, Mehmet, PhD, University of Ontario, 2011; Professor in Mechanical Engineering

Osman-Ahmed, Ahmed, PhD, University of Calgary, 2003; Professor in Electrical Engineering and Head, Department of Electrical Engineering; PhD-ECE Program Academic Coordinator

Overstreet, Mathew, PhD, University of Pittsburgh, 2018; Associate Professor in English

P

Pallathucheril, Varkki, PhD, The Ohio State University, 1992; Professor in Architecture

Park, Juana, PhD, University of Alberta, 2020; Associate Professor in Psychology

Parlak, Özgür, MA, Northern Arizona University, 2010; Associate Professor in English

Pasquier, Michel, PhD, National Polytechnic Institute of Grenoble, 1989; Associate Professor in Computer Science and Engineering

Picken, Gavin, PhD, University of Leeds, 2005; Professor in Arabic and Translation Studies

Punnakayathil, Najeeb, PhD, Indian Institute of Space Science and Technology, 2018; Assistant Professor in Physics

Q

Qaddoumi, Nasser, PhD, Colorado State University, 1998; Professor in Electrical Engineering

Qazi, Abroon, PhD, Strathclyde Business School, 2017; Associate Professor in Marketing and Supply Chain Management

Qiu, Shi, PhD, Indiana University, 2019; Visiting Assistant Professor in Economics

Qudourah, Feryal, PhD, Florida State University, 2018; Assistant Professor in Performing Arts

R

Rafiqi, Ahmad, PhD, Cornell University, 2018; Assistant Professor in Mathematics and Statistics

Rajendra Prasad, Harshvardhan, PhD, The University of Tennessee-Knoxville, 2025; Assistant Professor in Accounting and Information Systems

Rehman, Habib-ur, PhD, The Ohio State University, 2001; Professor in Electrical Engineering

Rhodes, Patrick, MArch, Southern California Institute of Architecture, 1999; Associate Professor in Architecture

Roldán, Juan, MArch, ETSAM Madrid, 2003; Associate Professor in Architecture

Romdhane, Lotfi, PhD, University of Florida, 1989; Professor in Mechanical Engineering; Associate Dean for Graduate Studies, College of Engineering

Roy, Sanket, MA, Cornell University, 2015; Associate Professor in Economics

Ruiu, Maria, PhD, Northumbria University, 2019; Associate Professor in Media Communication

Ruth, Matthias, PhD, University of Illinois at Urbana-Champaign, 1992; Professor in Economics; Vice Chancellor for Academic Affairs and Provost

S

Saad, Mohsen, PhD, University of Delaware, 2003; Professor in Finance and Head, Department of Finance

Sabouni, Rana, PhD, University of Western Ontario, 2013; Professor in Chemical and Biological Engineering

Sagahyroon, Assim, PhD, University of Arizona, 1989; Professor in Computer Science and Engineering and Associate Dean for Undergraduate Studies, College of Engineering

Sahin, Hasan, PhD, Bilkent University, 2011; Professor in Physics

Sajini, Abdulrahim, PhD, University of Cambridge, 2017; Assistant Professor in Biology, Chemistry and Environmental Sciences

Sakhi, Said, PhD, University of Montreal, 1994; Professor in Physics and Head, Department of Physics

Salaheldin Taha, **Mohamed**, MFA, University of Vermont, 2018; Assistant Professor in Art and Design

Salama, Mohamed Feras, PhD, University of Texas, 2008; Professor in Accounting and Information Systems

Sallos, Mark, PhD, Coventry University, 2019; Assistant Professor in Accounting and Information Systems

Salvadore, Matteo, PhD, Temple University, 2010; Professor in International Studies

Salvadore, Silvia, PhD, Indiana University of Pennsylvania, 2020; Assistant Professor in English

Samadhiya, Ashutish, PhD, Indian Institute of Technology Roorkee, 2022; Assistant Professor in Marketing and Supply Chain Management

Samara, Fatin, PhD, State University of New York, 2007; Professor in Biology, Chemistry and Environmental Sciences and Deputy Director, Energy, Water and Sustainable Environment Research Center

Samet, Anis, PhD, HEC Montreal, 2009; Professor in Finance and Bank of Sharjah Chair in Finance

Santtila, Pekka, PhD, Åbo Akademi University, 2000; Professor in Psychology and Head, Department of Psychology

Sarathi, Akshay, PhD, University of Wisconsin-Madison, 2020; Assistant Professor in International Studies

Sarnecky, William, MArch, University of New Mexico, 1999; Professor of Practice in Architecture

Savas, Gokhan, PhD, Syracuse University, 2013; Professor in International Studies

Sayed, Sana, MA, California State University, 2004; Senior Instructor in English

Schenck, Andrew, PhD, Incheon National University, 2022; Assistant Professor in English

Selcuk Aygin, Zafer, PhD, Carleton University, 2016; Assistant Professor in Mathematics and Statistics

Semaan, Rania, PhD, City University of New York, 2012; Professor in Marketing and Supply Chain Management

Shaaban, Mostafa, PhD, University of Waterloo, 2014; Professor in Electrical Engineering and Director, Energy, Water and Sustainable Environment Research Center

Shakaa, Rana, PhD, The University of New South Wales, 2023; Assistant Professor in Architecture

Shamayleh, Abdulrahim, PhD, Arizona State University, 2010; Associate Professor in Industrial Engineering and Head, Department of Industrial Engineering; PhD-ESM Program Academic Coordinator and MSESM Program Academic Coordinator

Shami, Muntasir, PhD, Aston University, 2018; Assistant Professor in Management, Strategy and Entrepreneurship

Shanableh, Tamer, PhD, University of Essex, 2001; Professor in Computer Science and Engineering

Sharawi, Ziyad, PhD, Central Michigan University, 2006; Professor in Mathematics and Statistics

Shareefdeen, Zarook, PhD, New Jersey Institute of Technology, 1994; Professor in Chemical and Biological Engineering

Sheil, Philip, MFA, University of Calgary, 1995; Senior Lecturer in Art and Design and Director, CAAD Foundation Year Program

Shim, Ji Young, PhD, City University of New York, 2013; Associate Professor in English (on sabbatical Academic Year 2026–2027)

Shockley, Bethany Lynn, PhD, Texas A&M University, 2014; Associate Professor in International Studies

Simonet, Daniel, DBA, University of Paris IX Dauphine, 1998; Professor in Management, Strategy and Entrepreneurship

Singh, Karnail, PhD, Indian Institute of Technology, 2006; Senior Lecturer in Chemical and Biological Engineering

Siry, Isra, MPhil, University of Keele, 1994; Senior Instructor in Physics

Spaw, Gregory, MArch, Harvard University, 2009; Associate Professor in Architecture (on sabbatical Academic Year 2026–2027)

Soliman, Marwa, PhD, University of Ottawa, 2022; Assistant Professor in Accounting and Information Systems

Squalli, Jay, PhD, University of Delaware, 2004; Professor in Economics; Head, Department of Economics and Director, Research Center for Entrepreneurship, Innovation and Sustainable Development

Sulieman, Hana, PhD, Queen's University, 1998; Professor in Mathematics and Statistics and Associate Dean for Graduate Affairs, College of Arts and Sciences

Syed, Raza, PhD, Northeastern University, 2005; Assistant Professor in Physics

T

Tabbarah, Faysal, MArch, Architectural Association School of Architecture, 2011; Associate Professor in Architecture (on leave Fall 2026)

Tabsh, Sami, PhD, University of Michigan, 1990; Professor in Civil Engineering

Tahirov, Nail, PhD, Technical University of Darmstadt, 2023; Assistant Professor in Marketing and Supply Chain Management

Tairi, Tatiana, PhD, City University, 2007; Associate Professor in Psychology

Taleb, Lahouari, MA, University of Toronto, 2015; Assistant Professor in Arabic and Translation Studies

Tanovic, Una, PhD, University of Massachusetts Amherst, 2021; Assistant Professor in English

Tariq, Usman, PhD, University of Illinois at Urbana–Champaign, 2013; Associate Professor in Electrical Engineering

Tasneem, Dina, PhD, McGill University, 2015; Associate Professor in Economics

Tassa, Anthony, MFA, The University of Tennessee, Knoxville, 1995; Professor in Performing Arts

Tawidian, Lucy, PhD, Tilburg University, 2023; Assistant Professor in Psychology

Teng, Ming Foey, PhD, University of South Australia, 2012; Senior Lecturer in Electrical Engineering

Thani, Salma, PhD, Monash University, 2019; Assistant Professor in International Studies

Thomas, Samuel, MA, University of Denver, 1997; Visiting Senior Instructor in Management, Strategy and Entrepreneurship

Thompson, Seth, MFA, Vermont College of Norwich University, 1997; Associate Professor in Art and Design

Tilakaratna, Namala, PhD, University of Sydney, 2017; Associate Professor in English

Toledo, Hugo, PhD, Auburn University, 1999; Professor in Economics

Tracy, Kenneth, MArch, Columbia University, 2005; Associate Professor in Architecture

Troian, Jais, PhD, Aix-Marseille University 2019; Assistant Professor in International Studies

Tufaha, Amjad, PhD, University of Virginia, 2007; Professor in Mathematics and Statistics

U

Ünlütabak, Burcu, PhD, Lehigh University, 2018; Assistant Professor in Psychology

Ursomarzo, Tania, MArch, Cranbrook Academy of Art, 2012; Assistant Professor in Architecture

V

Vadlamudi, Sundara, PhD, University of Texas at Austin, 2016; Assistant Professor in International Studies

Vanderpyl, Gregory, MA TESOL, SIT Graduate Institute, 2012; Senior Instructor in English

Virk, Ritu, PhD, University of Ottawa, 2026; Assistant Professor in Management, Strategy and Entrepreneurship

Vitaku, Valon, PhD, Texas A&M University, 2023; Assistant Professor in Economics

Vora, Neha, PhD, University of California Irvin, 2008; Professor in International Studies

W

Wang, Yuting, PhD, University of Notre Dame, 2009; Professor in International Studies; Head, Department of International Studies, and MAIS Program Academic Coordinator

Warkiani, Majid, PhD, Nanyang Technological University, 2012; Professor in Mechanical Engineering and Director, Advanced Biosciences and Bioengineering Research Center

Waxin, Marie-France, PhD, IAE Aix-en-Provence, 2000; Professor in Management, Strategy and Entrepreneurship

Wills, Krystie, MS, Michigan State University, 1994; Senior Instructor in English

Wong, Siu, PhD, University of Southern California, 2024; Assistant Professor in International Studies

Wright-Ivanova, Christina, PhD, University of Texas at Austin, 2012; Associate Professor in Performing Arts and Performing Arts Program Academic Coordinator

Y

Yan, Yimo, PhD, University of Hong Kong, 2025; Assistant Professor in Industrial Engineering

Yehia, Sherif, PhD, University of Nebraska-Lincoln, 1999; Professor in Civil Engineering

Younas, Javed, PhD, West Virginia University, 2007; Professor in Economics

Younes, Lina, MS, New York University, 2020; Assistant Professor in Performing Arts

Yousef, Abdel Rahman, PhD, The University of Toledo, 2009; Visiting Associate Professor in Mathematics and Statistics

Z

Zakaria, Amer, PhD, University of Manitoba, 2012; Associate Professor in Electrical Engineering

Zaki, May, PhD, Middlesex University, 2011; Professor in Arabic and Translation Studies and UNESCO Co-Chair in Arabic Language, Artificial Intelligence and Digital Heritage

Zantout, Zaher, PhD, Drexel University, 1990; Professor in Finance and Director, Financial Markets and Banking Center of Excellence

Zhai, Jiayin, PhD, University of California, 2026; Assistant Professor in Economics

Zhang, Yafei, PhD, University of South Carolina-Columbia, 2021; Assistant Professor in Finance

Zhang, Yuanyuan, PhD, University of Manchester, 2020; Assistant Professor in Mathematics and Statistics (on leave Fall 2026)

Zoubi, Taisier, PhD, University of North Texas, 1992; Professor in Accounting and Information Systems, and Associate Dean for Graduate Programs, School of Business Administration

Zualkernan, Imran, PhD, University of Minnesota, 1991; Professor in Computer Science and Engineering, and Head, Department of Computer Science and Engineering

Zuccato, Marco, PhD, the University of Melbourne, 2005; Associate Professor in International Studies

Zytkoskee, Adrian, PhD, University of Nevada, Reno, 2020; Assistant Professor in English

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