AMERICAN UNIVERSITY OF BEIRUT

MSCHE
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Undergraduate Catalogue 2026-27

Notice

Undergraduate Program Information

For information pertaining to undergraduate programs offered by the various faculties and schools at AUB, consult the 2026-27 edition of the Undergraduate Catalogue. The Information in this catalogue applies to academic year 2026-27. The university reserves the right to make changes to programs, course offerings, academic requirements, and teaching staff without prior notice as the need arises.

Student Responsibility for Catalogue Information

Students are responsible for reading and understanding the information in this catalogue. Failure to read and comply with faculty and university regulations will not exempt students from any penalties they may incur.
All students are assigned post office boxes and email addresses. It is the students' responsibility to check their post office boxes and email regularly for official announcements and information.

Beirut Address

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PO Box 11-0236, Riad El-Solh
Beirut 1107 2020, Lebanon
T +961 1 35 00 00

New York Address

American University of Beirut
The Debs Center – New York Office
3 Dag Hammarskjold Plaza, 8th floor
New York, NY 10017, USA
T +1 212 583 7600

This catalogue, along with relevant updates, can also be viewed at: www.aub.edu.lb/registrar. Additional information about course requirements is available on the online Banner Catalogue accessible through the AUB webpage.

AUB is committed to the principle of equal opportunity in education and employment to the fullest extent permitted by applicable laws. This includes prohibition against sexual harassment as mandated by Title IX of the US Education Amendments of 1972. Inquiries or complaints may be addressed to the Title IX Coordinator (titleix@aub.edu.lb), Office of the President, College Hall, telephone +961 1 35 00 00 - Ext. 2514. For AUB's policies, visit: www.aub.edu.lb/titleix.

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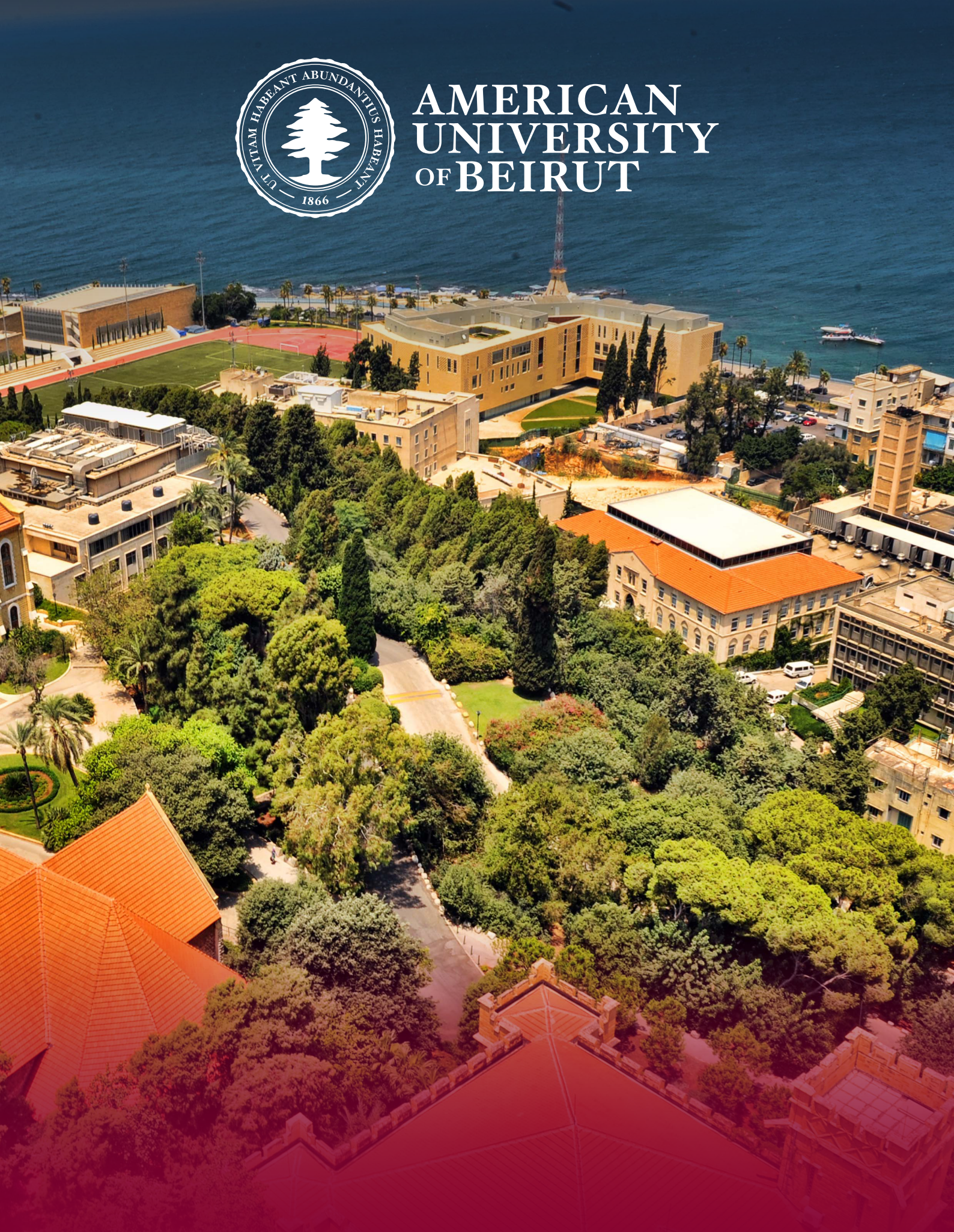
University Calendar 2026-27

https://www.aub.edu.lb/registrar/documents/calendars/calendar2026-27.pdf

AMERICAN UNIVERSITY OF BEIRUT



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AMERICAN
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Administration

University Administration 2026–27

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- Wickens, Drew; MBA, CPA, Chief Financial Officer

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- Dawy, Zaher; PhD, Provost
- Choueiri, Lina; PhD, Deputy Provost, Founding Director of The Institute for Academic Innovation and Development
- Akl, Elie; MD, Vice Provost for Research
- Tucker, Bradley Jon; MM, Vice Provost and Registrar
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- Mahfouz, Rami; MD, Director of the Human Research Protection Program (HRPP)
- Meho, Lokman; PhD, University Librarian
- Panayot, Nadine; PhD, Curator of the AUB Archaeological Museum
- Sabbagh, Antoine; MBA, Director of Admissions and Financial Aid
- Shibli, Rabih; MS, Executive Director of the Center for Community Engagement
- Srour, Issam; PhD, Executive Director of AUB Online

Faculty of Agricultural and Food Sciences

- Olabi, Ammar; PhD, Dean
- Jaafar, Hadi; PhD, Associate Dean for Research and Innovation
- Nasreddine, Lara; PhD, Associate Dean for Academic and Student Affairs

Faculty of Arts and Sciences

- El-Dahdah, Fares; PhD, Dean
- Boujaoude, Saouma; PhD, Interim Dean
- Baytieh, Hoda; PhD, Associate Dean for Online Education
- Karam, Pierre; PhD, Associate Dean for Faculty Development and Outreach
- Knio, Khouzama; PhD, Associate Dean for Advancement and Impact
- Raji, Wissam; PhD, Associate Dean for Research and Innovation

Suliman S. Olayan School of Business

- Sidani, Yusuf; PhD, Dean
- Moussawi, Lama; PhD, Associate Dean for Research and Faculty Development
- Zablith, Fouad; PhD, Associate Dean for Online Learning and Program Development

Maroun Semaan Faculty of Engineering and Architecture

- Shihadeh, Alan; PhD, Dean
- Al-Hindi, Mahmoud; PhD, Associate Dean for Academic Affairs and Staff
- Asmar, Daniel; PhD, Associate Dean for Research
- Chedid, Riad; PhD, Associate Dean for Outreach
- Elhajj, Imad; PhD, Associate Dean for Academic Transformation

Faculty of Health Sciences

- Mehio Sibai, Abla; PhD, Dean
- Shaya, Monique; PhD, Associate Dean

Faculty of Medicine

- Sawaya, Raymond; Vice President for Medical Affairs and Dean
- Alam, Samir; MD, Associate VP for Health & Chief of Medical Staff
- Badr, Kamal; MD, Deputy Vice President and Vice Dean
- Eid, Assaad; PhD, Associate Dean for Research and Graduate Education
- Haidar, Mohamad; MD, Associate VP for Faculty Financial and Governmental Affairs
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- Sabra, Ramzi; MD, Associate Dean for Medical Education
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- Zein-el-dine, Salah; MD, Associate VP for Clinical Affairs, DIO, and Chief Medical Officer
- Ziyadeh, Fuad; MD, Executive Associate Dean for Faculty Affairs

Rafic Hariri School of Nursing

- Noureddine, Samar; PhD, Dean
- Fares, Souha; PhD, Associate Dean for Research
- Yazbik-Dumit, Nuhad; PhD, Associate Dean for Academic Affairs

Student Affairs

- Al Akl, Nayla; MA, Dean of Student Affairs
- Aramouny, Carla; MArch, Associate Dean of Student Affairs
- Kharroubi, Samer; PhD, Associate Dean of Student Affairs
- Aboulhosn, Sara; PhD, Director of the AUB Career Center
- Abou Omar, Tarek; MS, Director of Charles Hostler Student Center
- Badaoui, Lama; MS, Director of Accessible Education Office
- Chamate, Sarah Joe; MS, Director of Counseling Center
- Abou-Fakhr, Nisrin; MSN, Student Housing Manager

Administrative Affairs

- Jaber Nachar, Mary; MBA, VP for Administration & Chief of Staff
- Andraos, Gaby; MS, Director of Facilities
- Bikhazi, Hala; MBA, MPH, Director of Benefits
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- Ghorayeb, Fadi; BA, Chief of Protection
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- Kachar, Simon; PhD, Executive Director of Communications
- Tauk, Mitra; MPH, Equal Opportunity Officer and Title IX Coordinator

Finance

- Wickens, Drew; MBA, CPA, Chief Financial Officer
- Dayya, Imad; MBA, CPA, Comptroller
- Hahn, Diana; MS, CPA, Assistant Comptroller (New York Office)
- Itani Ramadan, Hanan; MPH, Senior Director of Procurement and Contracts Administration
- Mansour, Maria; EMBA, Director of Financial Planning
- Zakhem Nakhle, Katia; MS, Director of Auxiliary Services

Information Technology

- Asfour, Yousif; PhD, Chief Innovation and Transformation Officer (CITO)
- Abbass, Mohammad; BS, Infrastructure Services Director
- Antoun, Rula; ME, Medical Center Applications Director
- Arslan, Romy; BS, Service Delivery Director
- Assaf, Antoine; BEng., Data Governance and Analytics Director
- Farran, Rami; BE, IT Academic and Applications Services Director
- Zouwayhed, Maha; MBA, I-Park and Digital Accessibility Director

Medical Center

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- Khayyat, Jad; MBA, Deputy Medical Center Director and Finance Director
- Bawadi, Hisham; MSN, Director of Nursing
- Itani, Lama; BS, Director of Human Resources
- Jamaleddine, Rawad; MPH, Patient Affairs, Quality, Accreditation, and Risk Management Director
- Wehbe, Mira; MPH, Administration and External Affairs Director
- Zayour, Samah; PharmD, Logistics and Supply Chain Director

Advancement

- Baalbaki, Imad; PhD, Senior Vice President for Advancement and Business Development
- Dannawi Oueida, Salma; EMBA, Associate Vice President for Advancement
- Jazi, Lina; MS, Associate Vice President for Alumni Relations (North America) and General Secretary of the Worldwide Association of the American University of Beirut (WAAAUB)
- Katergi, Walid; MS, Associate Vice President for Development, North America
- O'Connell, Patrick; MA, Associate Vice President for Advancement, North America
- Tannir, Lina; MBA, Director of Business Development
- El Sayyed, Rana; BA, Director of Stewardship
- Hallak, Mona; MArch., Director of AUB Neighborhood Initiative
- Nassar, Samar; BS, Director of Advancement Services
- Sbaiti El Zein, Nada; BA, Director of Prospect Research

The University

The American University of Beirut (AUB) is a private, independent, and non-sectarian institution of higher learning founded in 1866. It operates under a charter from the State of New York and is governed by a private, autonomous Board of Trustees.

AUB comprises seven faculties/schools: Agricultural and Food Sciences, Arts and Sciences, Health Sciences, Medicine, the Maroun Semaan Faculty of Engineering and Architecture, the Rafic Hariri School of Nursing, and the Suliman S. Olayan School of Business. AUB offers programs leading to bachelor's, master's, MD, and PhD degrees.

The university became co-educational in 1921. The language of instruction is English.

Accreditation and Quality Assurance

Degrees awarded by the American University of Beirut (AUB) are officially registered with the Ministry of Education and Higher Education (MEHE) in Lebanon and with the New York State Education Department (NYSED) in the United States (US).

AUB is accredited as an institution by the Middle States Commission on Higher Education (MSCHE) (www.msche.org), an institutional accreditor recognized by the United States Department of Education (USDE). The university was first accredited in June 2004, with reaffirmations in 2009, 2014, and 2019. In 2022, MSCHE approved the American University of Beirut – Mediterraneo (AUB Mediterraneo) in Pafos, Cyprus, as a branch campus. The university's full and updated Statement of Accreditation Status is available on the MSCHE website.

Six of AUB's faculties/schools have earned accreditation from professional accrediting agencies, in many cases as the first or only programs of their kind outside the US to be accredited by US agencies:

- **The Faculty of Agricultural and Food Sciences**
  The bachelor of science (BS) degree in nutrition and dietetics coordinated program was the first and only nutrition and dietetics program in the Middle East to receive US accreditation. It was accredited in 2013 under the International Dietitian Education Program standards by the Accreditation Council for Education in Nutrition and Dietetics (ACEND), the accrediting agency of the Academy of Nutrition and Dietetics. The program was fully reaccredited in 2017 for the maximum seven-year term. In 2025, ACEND granted full re-accreditation, for a seven-year term, to the MS in nutrition and dietetics coordinated program (MSNDCP), under the International Coordinated Program (ICP) in dietetics standards, and to the BS in nutrition and dietetics coordinated program (NDCP), under the Foreign Dietitian Education (FDE) program standards.

- **The Maroun Semaan Faculty of Engineering and Architecture**
  The bachelor of engineering (BE) in civil engineering, BE in computer and communications engineering, BE in electrical and computer engineering, and BE in mechanical engineering were accredited by the Accreditation Board for Engineering and Technology (ABET) in 2010 (retroactive to 2008); and renewed in 2016 and 2023. The BS in chemical engineering and BE in chemical engineering programs were also accredited by ABET in 2016 (retroactive to 2012 and 2013, respectively); and renewed in 2023. The BE in industrial engineering program was accredited by ABET in 2023 (retroactive to 2020). The bachelor of landscape architecture (BLA) program was accredited by the Landscape Architectural Accreditation Board (LAAB) of the American Society of Landscape Architects (ASLA) in 2021.

- **The Faculty of Health Sciences**

  The Public Health Program (PHP) received initial accreditation in 2006 from the Council on Education for Public Health (CEPH), an independent agency recognized by the US Department of Education that accredits schools of public health and public health programs. This accreditation was reaffirmed in 2012 and 2019.

  The accredited PHP includes: BS in environmental health, bachelor of arts (BA) in health communication, master of public health (MPH), master of science (MS) in epidemiology, MS in environmental sciences—major environmental health, and a PhD in epidemiology.

  The PHP at FHS was the first program to be accredited by CEPH outside the Americas and remains the only CEPH-accredited public health program in the Arab region. Internationally, it is one of only seven non-US PHPs to hold CEPH accreditation. This has enabled FHS to become a full member of the Association of Schools and Programs of Public Health and to join the Delta Omega Honorary Society in Public Health, which are recognitions of academic excellence limited to CEPH-accredited schools and programs.

- **The Faculty of Medicine**

  The Faculty of Medicine received full accreditation in 2019 for a period of six years by the Association for Evaluation and Accreditation of Medical Education Programs (TEPDAD) International Medical Education Accreditation Council, the authorized medical school accrediting body of the World Federation for Medical Education (WFME) based in Turkey. In September 2025, the Faculty of Medicine was granted a full three-year re-accreditation of its undergraduate medical program by the Association for Evaluation and Accreditation of Medical Education Programs (TEPDAD), effective January 1, 2025. This accreditation confirms the faculty's compliance with the requirements of the Educational Commission for Foreign Medical Graduates.

  The Faculty of Medicine received initial institutional accreditation from the Accreditation Council for Graduate Medical Education International (ACGME-I) in 2014 and has maintained accreditation since then. Currently, 20 residency programs and two fellowships are accredited by ACGME-I. These include: anatomic pathology, anesthesiology, clinical pathology, dermatology, diagnostic radiology, emergency medicine, family medicine, general surgery, internal medicine, endocrinology and metabolism, adult hematology-oncology, neurology, neurosurgery, obstetrics and gynecology, ophthalmology, orthopedic surgery, otorhinolaryngology, pediatrics, plastic surgery, psychiatry, radiation oncology, and urology.

- **The Rafic Hariri School of Nursing**

  The Rafic Hariri School of Nursing was the first nursing school outside American territories to have its baccalaureate and master's degree programs receive accreditation in 2007 by the Commission on Collegiate Nursing Education (CCNE). The baccalaureate and master's programs were reaccredited by CCNE in 2012 and 2022.

> **The Suliman S. Olayan School of Business**

The Suliman S. Olayan School of Business (OSB) is accredited by the Association to Advance Collegiate Schools of Business (AACSB International). It was the first school of business in Lebanon and the 100th business school outside the US to earn AACSB accreditation, first achieved in 2009, with successful reaffirmations in 2014, 2019, and 2025. OSB offers a comprehensive portfolio of AACSB-accredited degree programs, including the bachelor of business administration (BBA), with concentrations in accounting, finance (corporate finance and investment management), marketing, entrepreneurship and innovation, management and organization, information systems, operations management, and general business. The graduate portfolio includes the master of business administration (MBA), online master of business administration (OMBA), executive master of business administration (EMBA), master in finance (MFIN), master of arts in human resource management (MHRM), and master of science in business analytics (MSBA).

In 2025, AACSB accreditation was extended to include programs offered at the Faculty of Business of the American University of Beirut – Mediterraneo. These include the bachelor of business administration in management, the bachelor of business administration in digital marketing, and the master of science in business analytics, all delivered under the same academic standards and quality assurance framework as the Beirut campus.

Contact Information for Accrediting Agencies

AACSB: 777 South Harbour Island Boulevard, Suite 750, Tampa, FL 33602, +1-813-769-6500
ABET: 415 North Charles St., Baltimore, MD 21201, +1-410-347-7700
ACEND: 120 South Riverside Plaza, Suite 2190, Chicago, IL 60606-6995, +1-312-899-0040, Ext. 5400
ACGME-I: 401 North Michigan Avenue, Suite 2000, Chicago, IL 60611, +1-312-755-7042
CCNE: 655 K Street NW, Suite 750, Washington, DC 20001, +1-202-887-6791
CEPH: 800 I Street NW, Suite 4008, Washington, DC 20001, +1-202-789-1050
LAAB/ASLA: 636 Eye Street NW, Washington, DC 20001-3736, +1-202-898-2444, +1-888-999-2752 (Toll Free)
MSCHE: 1007 North Orange Street, 4th Floor, MB #166, Wilmington, DE 19801, +1-267-284-5011
TEPDAD: Kazım Dirik Mah. Ankara Cad. Doktorlar Sitesi, A Blok, No:231 Daire:2, 35100 Bornova, İzmir, Türkiye, +90-530-1234570

For information on AUB's mission statement and history, visit:
https://www.aub.edu.lb/AboutUs/Pages/default.aspx.

FORMER PRESIDENTS

- Peter F. Dorman (2008-15)
- John Waterbury (1997-2008)
- David S. Dodge (1996-97)
- Robert M. Haddad (1993-96)
- Frederic P. Herter (1987-93)
- Calvin Plimpton (1984-87)
- Malcolm H. Kerr (1981-84)
- Harold E. Hoelscher (1977-81)
- Samuel B. Kirkwood (1965-76)
- Norman Burns (1961-65)
- J. Paul Leonard (1957-61)
- Stephen B.L. Penrose, Jr. (1948-54)
- Bayard Dodge (1923-48)
- Howard S. Bliss (1902-20)
- Daniel Bliss (1866-1902)

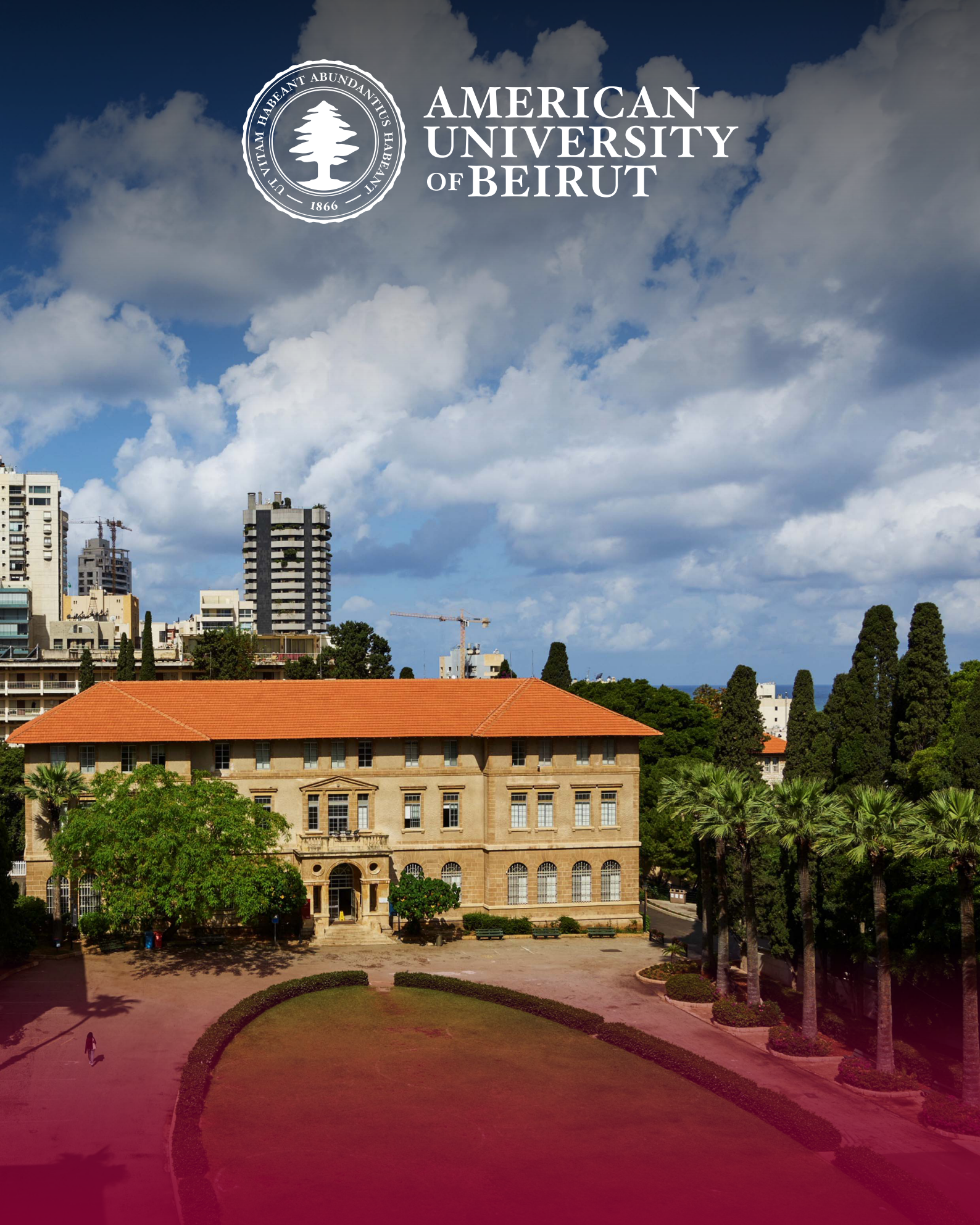
Also Served:

Makhlouf Haddadin (Acting, 2015) • George Tomey (Deputy, 2006) • Samir Makdisi (Acting Deputy/ Deputy, 1993-98) • Makhlouf Haddadin (Acting Deputy, 1992-93) • Ibrahim Salti (Deputy, 1987-93) • Lutfi Diab (Acting, 1986-87) • Raja N. Khuri (Acting, 1985-86) • Samir K. Thabet (Acting, 1984) • David S. Dodge (Acting, 1981-82) • James Cowen (Interim, 1976-77) • Constantin K. Zurayk (Acting, 1954-57) • Edward F. Nickoley (Acting, 1920-23)

Non-Discrimination Notice

AUB is committed to the principle of equal opportunity in education and employment to the fullest extent permitted by applicable laws. This includes prohibition against sexual harassment as mandated by Title IX of the US Education Amendments of 1972. Inquiries or complaints may be addressed to the Title IX Coordinator (titleix@aub.edu.lb), Office of the President, College Hall, telephone +961-1-350000, Ext. 2514. For AUB's policies, visit www.aub.edu.lb/titleix.

AMERICAN UNIVERSITY OF BEIRUT



Admissions

Undergraduate

The American University of Beirut seeks students of sound character, proven academic achievement, and strong potential. In accordance with the policies of its founders and its commitment to equal opportunity, the university admits students regardless of race, color, religion, gender, disability, or national origin. While AUB attracts students from more than ninety countries around the world, it primarily serves applicants from Lebanon, the Arab world, and the Middle East, and strives to maintain geographic distribution within the region. The university also values its strong ties with its alumni and considers the enrollment of children of alumni important to maintaining these ties and to continuing its traditions.

Application Procedures

Applications may be submitted online at: https://join.aub.edu.lb/apply/ or through Common App at: https://www.commonapp.org/apply.

Admission to Undergraduate Study

Students may apply for admission to AUB's undergraduate programs as:

- Freshmen in the Faculty of Arts and Sciences
- Sophomores/first-year professional students in all the faculties/schools
- Transfer students from other universities
- Visiting students, or non-degree students
- Second-degree applicants

The Executive Admissions Committee issues admission decisions on freshman, sophomore/first-year professional, transfer to sophomore, and visiting/non-degree applicants. The selection of transfer students to advanced standing or those applying for a second degree is made by the respective faculties/schools.

All admission decisions are conditional upon:

- Evidence of receipt of the certificate/degree that qualified the student for admission and is recognized by the Ministry of Education of the country of origin
- Successful completion of the high school diploma
- Evidence of fulfilling the Readiness for University Studies in English (RUSE) requirement

Students are not eligible to register until all conditions of their admission are met. These conditions are stated in the letter of admission's checklist, which must be completed by the specified deadlines.

Applicants for the fall term are notified of their conditional admission by early April, while applicants for the spring term are notified by early December. Upon receiving notification of conditional admission, students may secure a place for the fall-term entering class by paying a non-refundable confirmation fee of $1,000. This deposit is credited to the student's account upon registration.

Note: Recommendations, official transcripts of records, and all other documents submitted with an application for admission become the property of AUB and will not be returned to the applicant.

Freshman-Year Applicants

Freshman applicants may apply for admission to AUB's undergraduate program at the Faculty of Arts and Sciences. Admission is offered for the first (fall) term or the second (spring) term. Applicants for the fall term may also choose to apply under a special early admission track. All applications must be submitted online by the specified deadlines.

Applicants to the freshman year must submit the following for evaluation:

- **Secondary School Record**
  Applicants must provide an official report of grades, including average, for the two years of schooling prior to the year of application (grades 10 and 11). Schools that do not provide complete information may jeopardize the admission of their students. Applicants should request that school officials send these records directly to the AUB Office of Admissions.
- **Scholastic Aptitude Test (SAT)**
  The SAT is required for freshman-year applicants. Students are responsible for registering and taking the SAT.
  - Applicants for the fall term must sit for the test no later than the December testing session of the year previous to their planned enrollment.
  - Applicants for the spring term must sit for the test no later than the October testing session of the year previous to their planned enrollment.

  For students who sit for the test more than once, AUB considers the highest score achieved in each section, English and Math (the "SuperScore"). Applicants must ensure that their official SAT scores are submitted through College Board by entering the AUB code 0902 before admission decisions are issued. For information about test dates and locations of the SAT, applicants should visit the College Board website at https://www.collegeboard.org/sat. Applicants must also ensure the results of their last attempt will be issued before admission decisions are issued. AUB will only accept scores received directly from College Board. Applicants must ensure that they check the student portal (https://join.aub.edu.lb/manage/login) for the most updated and recent SAT scores available on record.
- **Permission to Enter the Freshman Class**
  Applicants to the freshman class are required to present a "permission" to enter the freshman class from the Equivalence Committee of the Lebanese Ministry of Education and Higher Education (MEHE). The Equivalence Committee at MEHE classifies freshman students into two tracks:
  - Sciences track: Requires a minimum SAT score of 950
  - Arts track: Requires a minimum SAT score of 870

The assigned track determines the programs into which a freshman may transfer upon completion of the freshman year.

- **Identification Document**
  A scanned copy of the applicant's national identity card or passport is required.
- **Application Fee**
  A non-refundable application fee of $50 must be paid for the application to be processed.
- **Complete Academic Record**
  All applicants must provide a complete academic record of official reports of grades from all institutions attended. Failure to present a complete academic record may result in the withdrawal of the admission offer.

Important Note: Applicants pursuing a high school program will only be considered for admission to the freshman year, even if they also present a Lebanese Baccalaureate diploma.

Special Freshman Admission Options

Two freshman admission options are available.

Option 1

Secondary school averages in Grade 10 and Grade 11:

- Applicants with an overall average of 13/20 or its equivalent in both Grade 10 and Grade 11 will be waived from the SAT requirement for admission.
- Nevertheless, MEHE requires admitted applicants to sit for the SAT anytime during their freshman year before they will be allowed to start their sophomore year.
  - A minimum SAT score of 950 is required for the sciences track.
  - A minimum SAT score of 870 is required for the arts track.
- The assigned track determines the programs into which a freshman may transfer upon completion of the freshman year.

Option 2

Applicants with an SAT SuperScore above 950 and who have successfully completed Grades 10 and 11 are automatically accepted to the freshman year.

Pre-Enrollment Registration Requirements for Freshman-Year Applicants

1. Meet the RUSE requirement by mid-August at the latest for the fall term and mid-December for the spring term.
2. Submit official hard copy transcripts for Grades 10, 11, and 12 along with a copy of the high school diploma by early July for the fall term and by mid-December for the spring term.
3. Submit the permission to enter the freshman class provided by MEHE by mid-August for the fall term and by mid-December for the spring term.

Once these documents are submitted, no changes to student status will be accepted after mid-November.

Disclaimer

Where applicable, official transcripts from all institutions of higher education (colleges or universities) attended are required. If AUB discovers that an applicant has provided an incomplete academic record, admission will be cancelled. In such cases, the student remains liable for all incurred fees for instruction at AUB, including reimbursement of any financial aid awarded, and will be ineligible to receive transcripts and certificates.

Credit for University Work Done at the Secondary Level for Freshman Students

With the approval of the concerned academic departments, a maximum of fifteen freshman credits may be awarded for scores of 4 or 5 on Advanced Placement (AP) examinations of the College Board (https://ap.collegeboard.org/).

AP results must be uploaded through the Admissions Student Portal once final results are out before the start of the term.

Sophomore-Year and other Undergraduate Program Applicants

Sophomore students may apply for admission to AUB undergraduate programs in all faculties. They may apply to one, two, or three of AUB's faculties/schools. Applicants for the fall term may also choose to benefit from an early admission track.
Sophomore and other undergraduate applicants—including transfer students from other universities, visiting students, non-degree students, and second-degree applicants—may apply for entrance in either the first (fall) term or the second (spring) term. All applications must be submitted online by the deadlines specified (https://www.aub.edu.lb/admissions/Pages/Deadlines.aspx).

Applicants to the sophomore and other undergraduate programs must submit the following for evaluation:

- **Secondary School Record**
  Applicants must provide an official report of grades, including average, for the two years of schooling prior to the year of application (grades 10 and 11). Schools that do not provide complete information may jeopardize the admission of their students. Applicants should request the school officials send these records directly to the AUB Office of Admissions.
- **Scholastic Aptitude Test (SAT)**
  The SAT is required of all undergraduate applicants, except junior and senior transfer students, non-degree, and visiting students. Students are responsible for registering and taking the SAT.
  - Applicants for the fall term must sit for the test no later than the December testing session of the previous to their planned enrollment.
  - Applicants for the spring term must sit for the test no later than the October testing session of the year previous to their planned enrollment.

  For students who sit for the test more than once, AUB considers the highest score achieved in each section, English and Math (the "SuperScore"). Applicants must ensure that their official SAT scores are submitted through College Board by entering the AUB code 0902 before admission decisions are issued. For information about test dates and locations of the SAT, applicants should visit the College Board website at https://www.collegeboard.org/sat. Applicants must also ensure the results of their last attempt will be issued before admission decisions are issued. AUB will only accept scores received directly from College Board. Applicants must ensure that they check the student portal (https://join.aub.edu.lb/manage/login) for the most updated and recent SAT scores available on record.
- **Identification Document**
  A scanned copy of the applicant's national identity card or passport is required.
- **Application Fee**
  A non-refundable application fee of $50 must be paid for the application to be processed.
- **Complete Academic Record**
  All applicants must provide a complete academic record of official reports of grades from all institutions attended. Failure to present a complete academic record may result in the withdrawal of the admission offer.

Deadlines for All Undergraduate Applications

For Regular Admission to:	Deadline
Spring term of academic year 2026-27	October 31, 2026
Fall term of academic year 2027-28	December 20, 2026
Spring term of academic year 2027-28	October 31, 2027
For Early/Merit Admission to:	**Deadline**
Fall term of academic year 2027-28	October 31, 2026

For more information about deadlines, visit https://www.aub.edu.lb/admissions/Pages/Deadlines.aspx.

Early/Merit Admission

A special early admission track for fall admission has been designed for students who meet the following requirements:

- Submission of the application form by October 31.
- High academic achievement in grades 10 and 11.
- SAT scores (the last session considered is the October session), as indicated in the table below:

Applying to	Minimum SAT (SuperScore)
Freshman	1100
Faculty of Arts and Sciences	
Bachelor of Arts Programs (humanities/ social sciences)	1170
Bachelor of Arts in Economics	1270
Bachelor of Sciences (quantitative thought and natural sciences)	1270
Bachelor of Sciences in Biology	1350
Hariri School of Nursing	1170
Faculty of Agricultural and Food Sciences	1270
Faculty of Health Sciences	1270
Suliman S. Olayan School of Business	1270
Maroun Semaan Faculty of Engineering and Architecture	
Bachelor of Fine Arts in Graphic Design	1270
Bachelor of Landscape Architecture	1270
All Engineering Programs including Architecture	1350

Important Aspects of Early/Merit Admission:

- It is granted only to the applicant's first-choice major within each faculty they applied to.
- Those who do not meet the requirements for their first choice in a specific faculty will have all the choices in that faculty transferred and assessed in the regular admission pool.
- These applicants may benefit from early action depending on the evaluation of their academic records.
- These applicants may benefit from an early decision also depending on the evaluation of their academic records.
- Early action and early decision admissions are subject to capacity and budget availability.
- It is granted only for the specific program(s) stated in the admission letter and for fall term enrollment only. Those who defer their enrollment to the following spring term will lose their early/merit scholarship.
- Those who wish to defer their enrollment from fall to spring must settle the confirmation fee before the deferral will be granted and acknowledge the loss of the scholarship.
- All admission offers are conditional upon the student providing evidence of having received the certificate or diploma (recognized by the Ministry of Education of the originating country) on the basis of which admission was granted, and upon fulfilling the Readiness for University Studies in English (RUSE) requirement. Students are not eligible to register until these conditions have been met.
- The early/merit scholarship covers the percentage stated in the admission letter over the entire period of undergraduate studies provided the student maintains a minimum GPA of 3.5 per term (any summer term is included with the subsequent fall term for this calculation).
- Confirmation of early/merit admission applies to one major only.

Pre-Enrollment Registration Requirements for Sophomore-Year Applicants

Accepted students who confirm their enrollment must provide the following documents:

1. Meet the RUSE requirement by mid-August at the latest for the fall term and mid-December for the spring term.
2. Submit official hard-copy transcripts for Grades 10, 11, and 12 along with a copy of the high school diploma by early July for the fall term and by mid-December for the spring term.
3. Submit a certified copy of the Lebanese Baccalaureate or its equivalent (IB, French Baccalaureate, GCE or another official government secondary school certificate) issued by the Ministry of Education and Higher Education in Lebanon (MEHE) by mid-November.

Once these documents are submitted, no changes to student status will be accepted after mid-November.

Disclaimer

Where applicable, official transcripts from all institutions of higher education (colleges or universities) attended are required. If AUB discovers that an applicant has provided an incomplete academic record, admission will be cancelled. In these cases, the student remains liable for all incurred fees for instruction at AUB, including reimbursement of any financial aid awarded, and will be ineligible to receive transcripts and certificates.

Readiness for University Study in English (RUSE)

Prior to registration at the university, undergraduate students admitted to AUB must demonstrate a level of English proficiency consistent with the demands of a program conducted almost entirely in English. This requirement should be fulfilled as early as possible, and no later than mid-August for the fall term and mid-December for the spring term.

Applicants can meet this requirement by submitting official test scores for any of the following approved tests:

- The AUB English Entrance Examination, AUB-EN (https://www.aub.edu.lb/TestingCenter/Pages/default.aspx)
- Test of English as a Foreign Language, TOEFL (https://www.ets.org/toefl.html)
- International English Language Testing System, IELTS Academic (https://ieltsregistration.britishcouncil.org/)
- SAT English section

The minimum scores required to meet the RUSE requirement are available at the following link: https://www.aub.edu.lb/admissions/Pages/EnglishRequirements.aspx

Applicants who do not achieve the required scores listed in the link above will be required to take remedial or intensive English language courses upon starting their degree programs in accordance with the requirements posted on the same webpage.

When registering for any of the above tests, applicants must make sure to submit the official results to the AUB Office of Admissions. In addition, the applicants must upload a scanned copy of their results on their student portal (https://join.aub.edu.lb/manage/login).

For more information about RUSE, visit: https://www.aub.edu.lb/admissions/Pages/EnglishRequirements.aspx.

Remedial/Intensive English Course

Applicants who obtain scores below the minimum required for meeting RUSE must register in a remedial/intensive English course. Placement in these courses is determined by the Communication Skills Program according to the criteria detailed at: https://www.aub.edu.lb/fas/english/Commskills/Pages/Placement.aspx.

Students enrolled in a remedial/intensive English course will not receive credit toward their degree for this course. These students may register for only one or two regular university courses (a maximum of six credits), thus earning credits toward their degree while working to achieve the level of English proficiency required to carry a full course load in the regular program. These regular university courses are limited to Arabic and courses in mathematics, statistics, or computer literacy in the Faculty of Arts and Sciences and equivalent statistics courses in the Faculty of Agricultural and Food Sciences, the Suliman S. Olayan School of Business, and the Faculty of Health Sciences.

Students may remain enrolled in remedial/intensive English courses one or two terms depending on their level of English language proficiency at the time of entry. However, students who fail to pass the remedial/intensive English course by the end of the second term will have their admission to the university cancelled.

Students enrolled in remedial and/or intensive courses are not eligible for financial aid.

University Preparatory Program

The University Preparatory Program (UPP) is designed for students who have completed the high school, Baccalaureate II, or other government secondary school certificate (based on twelve years of schooling starting with elementary one) and who have a limited formal background in English. The program offers a twenty hour per-week English curriculum that emphasizes an integrated approach to listening, reading, writing, and speaking. Study skills, pronunciation, and research skills are incorporated into the course to meet students' individual needs. An additional six hours of mathematics and/or science are provided to ensure that students are fully prepared for university-level work.

It is recommended that UPP students reside on campus in one of AUB's all-men or all-women residences. Residence living fosters an "immersion approach" to language learning, allowing students to practice their English language skills outside the classroom.

In addition to the residential experience, students have the opportunity to participate in regular AUB extracurricular activities and a series of field trips planned in conjunction with their coursework.

Students who complete the UPP are admitted to the freshman class at AUB after passing the program's exit exam and meeting the minimum SAT requirements set by the Lebanese Ministry of Education and Higher Education (MEHE; refer to the above section "Freshman-Year Applicants"). Students applying to the sophomore class must take the SAT and follow the standard admission procedure for regular applicants.

Transfer from Other Universities

Freshman Transfer

Students enrolled at a recognized institution of higher learning may apply for admission to the freshman year if they have freshman status at their current university and have earned a maximum of fifteen freshman credits or AUB equivalent.

Admission in this category is based on:

- SAT (SuperScore)
- Grade 10 and 11 general averages
- Official transcripts from all institutions of higher education attended

Sophomore Transfer (Transfer with Fewer than 54 credits)

Students enrolled at a recognized institution of higher learning may apply for admission to the sophomore year if they have completed a class equivalent to the freshman class and have earned a maximum of twenty-three sophomore credits or AUB equivalent.
(Refer to deadline page: https://www.aub.edu.lb/admissions/Pages/Deadlines.aspx)

Admission in this category is based on:

- SAT (SuperScore)
- Grade 10 and 11 general averages
- Official transcripts from all institutions of higher education attended

Junior Transfer (Advanced Transfer)

Students enrolled at a recognized institution of higher learning may apply for admission as junior transfer if they have completed a class equivalent to the freshman class and have earned a maximum of twenty-four sophomore credits or AUB equivalent. These students will not need to submit SAT results since SAT is not part of the assessment. However, they will need a minimum GPA of 3.0 or its equivalent to be considered for assessment.

All admitted transfer applicants must:

- Submit official transcripts from all institutions of higher education attended.
- Fulfill the Readiness for University Studies in English (RUSE) requirement prior to registration (https://www.aub.edu.lb/admissions/english/).
- Submit their official grade 12 transcript along with their high school diploma and government secondary certificate or its equivalent.
- Consult the appropriate faculty/school sections of the university catalogue, taking particular note of the residency requirements and any additional admission requirements specific to that faculty/school.
- Submit the syllabi for all courses they expect to receive transfer credit for at AUB to the Office of Admissions by the following deadlines:
  - Fall term applicants: Initial submission by April 30. Any missing syllabi must be received by May 30—after this date, no course equivalences will be granted.
  - Spring term applicants: All required syllabi by November 15.

  Course equivalences are evaluated only for syllabi submitted by these deadlines.

Courses completed at another institution may be considered for transfer credit provided they are in recognized academic disciplines and were successfully completed with a minimum grade of C+, in accordance with AUB standards. Transfer credits are awarded as credit only (without grades) and are subject to review and approval by the relevant departments and faculties at AUB. Applicants should be aware that not all previously completed courses may be eligible for transfer, which could affect their class standing.

Course transferability is also contingent on where the Ministry of Education and Higher Education (MEHE) decides the term break of each student's Freshman Equivalence falls. Courses used by the Ministry to provide the Freshman Equivalence may not be transferred. Prerequisite courses taken during the time determined by the Ministry for the Freshman Equivalence will be counted as fulfilling any prerequisite requirement. AUB reserves the right to update a student's status for admissions based on MEHE's decision.

Transfer from AUB-Mediterraneo

Students transferring from AUB-Mediterraneo must fulfill all transfer requirements mentioned above. However, as AUB-Mediterraneo is a branch campus of AUB, both course credits and grades will be transferred for any courses accepted for transfer.
Admission into the selected program is based on eligibility and availability of seats. For more information on the admission requirements for transfers, visit the following link:
https://www.aub.edu.lb/admissions/transfer-Second-Degree-Diploma/Pages/Transfer.aspx
If students are high school diploma holders and have completed their freshman year at AUB-Mediterraneo and wish to transfer to AUB Beirut, they will need to secure the Freshman Permission and the Freshman Equivalency from MEHE. If they have completed one freshman term at AUB-Mediterraneo and wish to transfer to AUB Beirut to continue their freshman year, they have to secure the Freshman Permission from MEHE. For assistance and more information, contact the Office of Admissions at admissions@aub.edu.lb.

Sophomore Credits Taken at the Freshman Level

For freshman students who have not yet obtained their equivalency from MEHE, any sophomore-level credits taken will not be counted toward the sophomore year. Freshman equivalency must be finalized for these credits to be recognized as sophomore-level credits and counted toward the degree requirements, provided they are successfully completed beyond the freshman equivalency session date set by the MEHE.

Pre-Enrollment Registration Requirements for Transfer to Sophomore and/or Advanced Transfer Program Applicants

1. Meet the RUSE requirement by mid-August at the latest for the fall term and mid-December for the spring term.
2. Submit official hard copy transcripts for Grades 10, 11, and 12 along with a copy of the high school diploma by early July for the fall term and by mid-December for the spring term.
3. Submit a certified copy of the Lebanese Baccalaureate or its equivalent (IB, French Baccalaureate, GCE or another official government secondary school certificate) issued by the Ministry of Education and Higher Education in Lebanon (MEHE) by early July for the fall term and by mid-December for the spring term.
4. Submit official updated final transcripts from all previously attended institutions of higher education (colleges or universities) by early July for the fall term and by mid-December for the spring term.

Once these documents are submitted, no changes to student status will be accepted after the start of the term.

Disclaimer

Where applicable, official transcripts from all institutions of higher education (colleges or universities) attended are required. If AUB discovers that an applicant has provided an incomplete academic record, admission will be cancelled. In these cases, the student remains liable for all incurred fees for instruction at AUB, including reimbursement of any financial aid awarded, and will be ineligible to receive transcripts and certificates.

Admission to Second Degree

Two years or more after graduating, AUB bachelor's degree graduates who wish to pursue a second bachelor's degree —whether in the same faculty/school or a different one — must apply through the Office of Admissions using a second-degree application form. The minimum GPA requirement is 3.0. This category of applicants is exempted from the SAT and the Readiness for University Studies in English (RUSE) requirements.

Students holding a bachelor's degree from another accredited institution of higher education recognized by AUB may also apply to pursue a bachelor's degree in a different major. If accepted, such applicants must satisfy the Readiness for University Studies in English (RUSE) requirement.

All applications for a second degree are evaluated by the Admissions Committee of the concerned faculty/ school, which then makes recommendations to the dean. Final admission decisions depend on the overall

qualifications of the applicant pool and the availability of seats.
For more information on the admission requirements, visit the following link:
https://www.aub.edu.lb/admissions/transfer-Second-Degree-Diploma/Pages/Undergraduate-Second-Degree.aspx.

Admission to the Teaching Diploma and other Undergraduate Diploma Programs

AUB bachelor's degree graduates or graduates from another accredited institution of higher education recognized by AUB may apply to pursue an undergraduate diploma program. The minimum GPA requirement is 3.0. This category of applicants is exempted from the SAT requirement.

All applications for this category are evaluated by the Admissions Committee of the concerned faculty/school, which then makes recommendations to the dean. Final admission decisions depend on the overall qualifications of the applicant pool and the availability of seats for the term sought.

The following undergraduate diploma programs are offered:

- **Teaching Diploma Program**
- **Diploma in Special Education**
- **Diploma in Educational Management and Leadership**

For more detailed information, visit the Department of Education page:
https://www.aub.edu.lb/fas/dep/Pages/Diploma_Programs.aspx

- **Diploma in Development Studies**

For more detailed information, visit the Department of Sociology, Anthropology, and Media Studies page:
https://aub.edu.lb/fas/soam/Pages/Undergraduateprograms.aspx

For more information on the admissions requirements, visit the following link:
https://www.aub.edu.lb/admissions/transfer-Second-Degree-Diploma/Pages/Diploma.aspx

Pre-Enrollment Registration Requirements for Second Degree and/or Teaching Diploma Program Applicants

1. Meet the RUSE requirement by mid-August at the latest for the fall term and by mid-December for the spring term.
2. Submit official hard copy transcripts for Grades 10, 11, and 12 along with a copy of the high school diploma by early July for the fall term and by mid-December for the spring term.
3. Submit a certified copy of the Lebanese Baccalaureate or its equivalent (IB, French Baccalaureate, GCE or another official government secondary school certificate) issued by the Ministry of Education and Higher Education in Lebanon (MEHE) by early July for the fall term and by mid-December for the spring term.
4. Submit official updated final transcripts from all previously attended institutions of higher education (colleges or universities) by early July for the fall term and by mid-December for the spring term.
5. Submit a certified copy of the bachelor's degree stamped by the previous university by early July for the fall term and by mid-December for the spring term.
6. Submit a certified equivalency of the bachelor's degree from MEHE by early July for the fall term and by mid-December for the spring term.

Once these documents are submitted, no changes to student status will be accepted after the start of the term.

Disclaimer

Where applicable, official transcripts from all institutions of higher education (colleges or universities) attended are required. If AUB discovers that an applicant has provided an incomplete academic record, admission will be cancelled. In these cases, the student remains liable for all incurred fees for instruction at AUB, including reimbursement of any financial aid awarded, and will be ineligible to receive transcripts and certificates.

Admission of Non-Degree Students

Individuals enrolled at recognized universities other than AUB—or those who have completed at least one term or twelve credits at another university—and who hold a recognized government secondary school certificate (or its equivalent) may apply to take up to seventeen credits per term at the undergraduate level in any faculty/school for the fall or spring term as a non-degree student using the online application available on the Office of Admissions webpage.

Admission as a non-degree student is normally offered for two terms if the student is joining AUB starting in the fall, or for one term if starting in spring. Registration may be extended for one additional term depending on course offerings and academic performance in courses taken at AUB upon submission of a petition.

Courses completed at AUB by non-degree students may later be considered for credit transfer toward an AUB degree if the student applies and is admitted to a degree program through the regular admission process. Non-degree students who have completed 24 or more sophomore credits at AUB as a non-degree student with a minimum GPA of 3.0 may apply for advanced transfer.

Students whose native language is English, or who have completed two years of higher education at a university in which English is the primary language of instruction, are exempted from the Readiness for University Studies in English (RUSE) requirement. For more information, visit https://www.aub.edu.lb/admissions/english.

Study Away at AUB for AUB-Mediterraneo Students

Individuals enrolled at AUB-Mediterraneo who have completed at least one term or twelve credits and who hold a recognized government secondary school certificate (or its equivalent) may apply to take up to seventeen credits per term at the undergraduate level in any faculty/school for the fall or spring term as a special student using the online application available on the Office of Admissions webpage.

Admission as a Visiting (Exchange) Undergraduate Student

Applicants wishing to study abroad or participate in an exchange program at AUB must be enrolled at recognized institutions of higher learning and must have completed at least the sophomore year or its equivalent at their home universities.

Applications must be submitted online to the Office of Admissions, along with the official transcript of records, by the end of March if applying for the fall term or by the end of October if applying for the spring term.

Applicants must clearly specify their intended course of study during their visiting status.
Admission is normally offered for two terms if the student is joining AUB starting fall or for one term if starting in spring. Registration may be extended for an additional term depending on course offerings and academic performance in courses taken at AUB, upon submission of a petition.
Students whose native language is English, or who have completed two years of higher education in a university where English is the primary language of instruction, are exempted from the Readiness for University Studies in English registration (RUSE) requirement. For more information, visit https://www.aub.edu.lb/admissions/english.

Pre-Enrollment Registration Requirements for Special Student Not Working for a Degree Applicants

1. Meet the RUSE requirement by mid-August at the latest for the fall term and mid-December for the spring term.
2. Submit official updated final transcripts from all previously attended institutions of higher education (colleges or universities) by early July.
3. Submit a certified equivalency of the bachelor's degree from MEHE by early July for the fall term and mid-December for the spring term.

Once these documents are submitted, no changes to student status will be accepted after the start of the term.

Disclaimer

Where applicable, official transcripts from all institutions of higher education (colleges or universities) attended are required. If AUB discovers that an applicant has provided an incomplete academic record, admission will be cancelled. In these cases, the student remains liable for all incurred fees for instruction at AUB, including reimbursement of any financial aid awarded, and will be ineligible to receive transcripts and certificates.

Admission of University Employees

Employees of the university who meet at least minimum undergraduate admission requirements are given admission as part-time students by the Director of Admissions. Such applicants must sit for the SAT within the set deadlines and must meet the Readiness for University Studies in English (RUSE) requirement before registration. Employees who leave AUB and wish to continue their education at the university must apply for admission in competition with other applicants.

Admission to the Summer Term

Non-degree and visiting applicants who are currently not registered at AUB but wish to enroll only for the summer term must submit their applications by the end of April.

Applicants must:

- Hold a recognized government secondary school certificate.
- Be enrolled at a recognized university
- Provide an official transcript from all institutions of higher education attended.
- Meet the Readiness for University Studies in English (RUSE) requirement.

The Director of Admissions evaluates these applications and determines whether to grant or deny admission.

Readmission

The following regulations apply to students seeking readmission:

- Students in good standing who voluntarily withdrew from the university for more than two years must submit a readmission petition (readmission form) through the online petition system to the Dean's Office of the concerned faculty/school and must obtain readmission approval from the Office of Admissions.
- Students who have left the university for fewer than two years, and/or those who left the university while on probation, should refer to the Reactivation section under the General University Academic Information in the catalogue.

In all cases, official transcripts from all institutions of higher education attended during the interim must be submitted.

Deferred Registration

Undergraduate applicants who are admitted for the fall term and who do not register for that term may be eligible for admission to the spring term of the same academic year, subject to the availability of places. A petition must be submitted via the Admissions Student Portal before January 5, 2027. Undergraduate applicants admitted in the spring may not defer their admission to a subsequent term.

Students who enroll in another institution of higher learning after receiving an offer of admission from AUB are not eligible for deferred registration. Such applicants will instead be evaluated as transfer students, who must notify the Office of Admissions of their enrollment at another institution of higher learning and submit their updated university transcripts prior to the start of the term.
If a student fails to notify the Office of Admissions of such information and wishes to transfer credits at a later stage, AUB has the right to revoke the acceptance/enrollment.
Applicants who were granted an early/merit Scholarship and wish to postpone their acceptance until the following spring term will lose their scholarship. For more information, refer to the Early/Merit Admission section.

Using Second Admission for Admitted Students

Students accepted to two faculties and register in one of them in the fall term may decide to use their second admission by submitting a petition via the Admissions Student Portal before January 5, 2027. Admission to the second faculty/school is subject to availability of places.

Applicants who were granted an early/merit scholarship and wish to use their second admission will retain their scholarship percentage provided that the student has maintained a minimum GPA of 3.5 as indicated in the admission letter. However, the scholarship percentage may be prorated based on the new major.

Requirements of Admitted Students for Registration

Students admitted to AUB must fulfill the following requirements prior to registration:

- A medical examination.
- The Readiness for University Studies in English (RUSE).
- Evidence of having received the diploma, certificate, degree or university level education that qualified the student for admission.

Refer to the Pre-enrollment Registration Requirements applicable to the relevant student category.

The RUSE may be met through various means as outlined under the RUSE section. The diploma/certificate requirement may be satisfied in various ways, which in turn determine the faculty/school and the level to which applicants apply, are admitted, and register at the university.

Government Secondary School Certificate/Diploma Requirements for Registration and the Classes for Which They Qualify – Freshman Category

All applicants to the freshman class must hold a government secondary school certificate awarded by a public or private school that is recognized by both the Lebanese Ministry of Education and Higher Education and AUB.
The university does not recognize secondary diplomas or certificates based on fewer than twelve years of schooling, beginning with Grade 1 (Elementary I Class). The GCE ordinary level and one year of the Collège d'Enseignement Général et Professionel (CEGEP) qualify for admission to the freshman class at AUB.
Applicants to the freshman class who have followed a high school diploma program meeting the above criteria must obtain permission from the Equivalence Committee of the Lebanese Ministry of Education and Higher Education to pursue their higher education on the basis of a foreign (non-Lebanese) program. Applicants are strongly advised to begin the process of securing this permission at least two months before the start of registration at AUB. This permission may be obtained by applying directly to the Equivalence Committee of the Ministry of Education and Higher Education.
https://www.mehe.gov.lb/en/services

The Equivalence Committee of the Lebanese Ministry of Education and Higher Education requires applicants to the freshman class to take the SAT provided they have received permission to pursue higher education on the basis of a foreign program.

At the time of registration for the freshman class, students should consult their academic advisers to ensure that the number of credits and types of subjects they take during their freshman year comply with the specifications of the Equivalence Committee of the Ministry of Education and Higher Education. A total SAT score (Verbal + Mathematics) of at least 950 is required for the sciences track, and at least 870 for the arts track.

Upon completion of the freshman class at AUB, students who have secured the required permission are entitled to have their freshman class equated to the Lebanese Baccalaureate by the Equivalence Committee of the Ministry of Education and Higher Education.

All applicants for admission to the sophomore class, or its equivalent classes in other faculties/schools, must hold the Lebanese Baccalaureate or its equivalent, as recognized by both the Lebanese Ministry of Education and Higher Education and AUB.

Furthermore, candidates admitted to the university as non-Lebanese are not permitted to change their nationality to Lebanese in the university's records unless they had fulfilled all admission requirements applicable to Lebanese students at the time of their initial admission.

Basis of Admission Certificates and the Classes for Which They Qualify – Sophomore Category

Regardless of the certificate that qualified the student for admission, candidates may be required to take remedial courses depending on the path followed in the certificate and the major they have been admitted to.

Lebanese Baccalaureate

There are four types of Lebanese Baccalaureate: Literature and Humanities, Sociology and Economics, General Sciences, and Life Sciences. Refer to Certificate and Class Chart for details.
Students enrolled in the Sociology and Economics - Lebanese Baccalaureate track may apply only to the graphic design and landscape architecture majors in the Maroun Semaan Faculty of Engineering and Architecture, and to any major in the remaining faculties.

Technical Baccalaureate

Students who are completing a technical baccalaureate are required to enroll in the program that falls under the same track as their technical baccalaureate and will be required to take additional credits as stipulated by the MEHE. Upon confirmation, students need to contact the Student Services Office in their faculty/ school to ensure they register for the prerequisite courses during their first term. Failure to complete these prerequisites may result in the cancellation of their registration.

IB (International Baccalaureate), FB (French Baccalaureate), or GCE (General Certificate of Education)

Students enrolled in IB (International Baccalaureate), FB (French Baccalaureate), or GCE (General Certificate of Education) should refer to the table linked below to avoid taking remedial courses in certain majors. Students who have not completed the subjects in the IB, FB, or GCE corresponding to a specific major may still apply and join that major; however, they will be required to complete additional remedial courses at AUB.
Remedial courses are assigned by the academic adviser in the faculty the student joins.
For details, refer to the table through the following link:
www.aub.edu.lb/admissions/Sophomore-freshmen/Documents/Subject%20Requirements%20per%20Major%20for%20Schools.pdf.

Certificates Issued by Governments

Holders of other government secondary certificates are eligible to apply to the freshman class in the Faculty of Arts and Sciences or to the sophomore or equivalent classes in other faculties/schools.

Some government certificates are divided into literary and scientific categories:

- A literary certificate generally qualifies students for admission to arts or business programs. Students with a literary certificate who wish to pursue a science major may apply but will be required to complete additional prerequisite courses.
- A scientific certificate qualifies for admission to all majors

For details, refer to the table through the following link:
www.aub.edu.lb/admissions/Sophomore-freshmen/Documents/Subject%20Requirements%20per%20Major%20for%20Schools.pdf

In certain educational systems, secondary certificates do not specify literary, scientific, or other types of certificates but instead indicate the subjects passed. The Executive Admissions Committee evaluates such applications on a case-by-case basis.
For certificates where grading is not available for subjects, the student must demonstrate that the subjects have been successfully passed.
Students who are completing two years of the Collège d'Enseignement Général et Professionel (CEGEP) and who earn the Diplôme d'Études Collégiales (DEC) are eligible to apply for admission to the sophomore class.

Commercial, Agricultural, and Vocational Secondary Certificates

Commercial, agriculture, and vocational secondary certificates are generally not considered for admission to AUB. However, if the issuing government officially recognizes the certificate as equivalent to the official government secondary school certificate, the holder will be eligible for admission consideration. The class and programs eligibility depend on the area of concentration of the certificate, which should be validated by the Ministry of Education and Higher Education (MEHE) in Lebanon.

Informal Education Preparation

The formal education requirements for admission to the freshman class may be waived for applicants who have reached the age of 25. Such applicants must satisfy the specific requirements established by the Executive Admissions Committee.

Certificate and Class Chart

Undergraduate

The chart below lists the types of school certificates and the corresponding university classes to which holders may be admitted. In all cases, applicants must:

- Take the SAT (including Mathematical Reasoning and Verbal Reasoning sections) by the stated deadline, and
- Meet the Readiness for University Studies in English (RUSE) requirement.

School Certificate	University Class Eligibility
High School Diploma Based on at least twelve years of schooling, starting with Elementary I Class Students who achieve high grades on certain College Board Advanced Placement (AP) examinations may apply for freshman course credit in those subjects (refer to the Freshman Program section in FAS)	Freshman
CEGEP – 1 year	Freshman
CEGEP – 2 years + DEC	Sophomore
Government Secondary Certificates Based on at least twelve years of schooling, starting with Elementary I Class	Students need to verify with the Ministry of Education and Higher Education (MEHE) whether their secondary certificate is officially recognized as equivalent to the Lebanese Baccalaureate. This determination is required to confirm eligibility for freshman admission or sophomore admission.

Students who successfully complete the freshman class must obtain the Freshman Equivalence from the Ministry of Education and Higher Education (MEHE). They may then be promoted to the sophomore class.

Students admitted to the freshman class are strongly encouraged to consult with their academic advisers to become familiar with the admission requirements for the majors offered by the various faculties/schools of the university, which are described in detail in the Faculty of Arts and Sciences section of this catalogue.

Government Secondary Certificates (Literary or Scientific), including the German Abitur and the Diplôme D' Études Collégiales (DEC) based on two years of the CEGEP program, the French Baccalaureate, the General Certificate of Education (GCE), and the International Baccalaureate (IB).

1. **Government Secondary School Certificates (including the Lebanese Baccalaureate – General Sciences and Life Sciences)** generally qualify the holder for admission to majors in the sophomore class.
2. **Government Secondary School Certificates (including the Lebanese Baccalaureate – Literature and Humanities)** may require the holder to complete additional courses if applying to majors where science or mathematics is required.

3. **International Baccalaureate (IB), French Baccalaureate (FB), and General Certificate of Education (GCE) Requirements**

The table below shows the specific subjects and requirements that students must complete in the International Baccalaureate (IB), French Baccalaureate (FB), or General Certificate of Education (GCE) to qualify for direct admission to certain majors at AUB without needing any remedial courses. Students who have not completed the required subjects for their intended major may still be admitted. However, they will need to take additional remedial courses at AUB, typically during their first and second terms.

For the updated version of the table which includes AUB remedial courses, visit: www.aub.edu.lb/admissions/Sophomore-freshmen/Documents/Subject%20Requirements%20per%20Major%20for%20Schools.pdf

Faculty	MAJOR	IB	FB	GCE
FAFS	Agribusiness	Math SL or HL	Mathematics (1ère + complementaire or terminale)	Math AS Level with Pure Math 2 or A Level
	Agriculture	Chemistry SL or HL Math SL or HL Biology SL or HL	Physics & Chemistry (1ère) Mathematics (1ère + complementaire or terminale) Biology & Earth Sciences (1ère + terminale)	Chemistry AS Level or A Level Math AS Level with Pure Math 2 or A Level Biology AS Level or A Level
	Food Science and Management	Chemistry SL or HL Math SL or HL Biology SL or HL	Physics & Chemistry (1ère) Mathematics (1ère + complementaire or terminale) Biology & Earth Sciences (1ère + terminale)	Chemistry AS Level or A Level Math AS Level with Pure Math 2 or A Level Biology AS Level or A Level
	Nutrition and Dietetics	Chemistry SL or HL Biology SL or HL	Physics & Chemistry (1ère) Biology & Earth Sciences (1ère + terminale)	Chemistry AS Level or A Level Biology AS Level or A Level

FAS	Applied Mathematics	Math HL	Mathematics (1ère + terminale)	Math A Level
	Biology	Chemistry SL or HL Biology SL or HL Physics SL or HL or Math HL	Physics & Chemistry (1ère) Biology & Earth Sciences (1ère + terminale) Mathematics (1ère + complementaire or terminale)	Chemistry AS Level or A Level Biology AS Level or A Level Math AS Level with Pure Math 2 or A Level Physics A Level
	Chemistry	Chemistry HL Math HL Physics HL	Physics & Chemistry (1ère + terminale) Mathematics (1ère + terminale)	Chemistry A Level Math A Level Must take remedial physics
	Computer Science	Math HL	Mathematics (1ère + terminale)	Math A Level
	Economics	Math HL	Mathematics (1ère + terminale)	Math A Level
	Mathematics	Math HL	Mathematics (1ère + terminale)	Math A Level
	Physics	Math HL Physics HL	Mathematics (1ère + terminale) Physics & Chemistry (1ère)	Math A Level Must take remedial physics
	Statistics	Math HL	Mathematics (1ère + terminale)	Math A Level
	Premed Track (Students willing to follow premed track should take the subjects listed in the table along with those required for their chosen major to avoid taking remedial courses.)	Chemistry SL or HL Biology SL or HL Physics SL or HL	Physics & Chemistry (1ère) Biology & Earth Sciences (1ère + terminale)	Chemistry AS Level or A Level Biology AS Level or A Level Physics A Level

FHS	Environmental Health	Chemistry SL or HL Math SL or HL	Physics & Chemistry (1ère) Mathematics (1ère + complementaire or terminale)	Chemistry AS Level or A Level Math AS Level with Pure Math 2 or A Level
	Medical Imaging Sciences	Math HL Physics SL or HL Biology SL or HL	Mathematics (1ère + terminale) Physics & Chemistry (1ère) Biology & Earth Sciences (1ère + terminale)	Math A Level Physics A Level Biology AS Level or A Level
	Medical Laboratory Sciences	Chemistry HL Math HL Biology SL or HL	Physics & Chemistry (1ère + terminale) Mathematics (1ère + terminale) Biology & Earth Sciences (1ère + terminale)	Chemistry A Level Math A Level Biology AS Level or A Level

HSON	Nursing	Chemistry SL or HL Biology SL or HL Math SL or HL	Physics & Chemistry (1ère) Biology & Earth Sciences (1ère + terminale) Mathematics (1ère + complementaire or terminale)	Chemistry AS Level or A Level Biology AS Level or A Level Math AS Level with Pure Math 2 or A Level

MSFEA	Architecture	Math HL	Mathematics (1ère + terminale)	Math A Level
	Chemical Engineering	Chemistry HL Math HL Physics HL	Physics & Chemistry (1ère + terminale) Mathematics (1ère + terminale)	Chemistry A Level Math A Level Must take remedial physics
	Engineering	Chemistry SL or HL Math HL Physics HL	Physics & Chemistry (1ère) Mathematics (1ère + terminale)	Chemistry AS Level or A Level Math A Level Must take remedial physics

OSB	Business	Math SL or HL	Mathematics (1ère)	Math AS Level or A Level

Medical Record, NSSF, and HIP

Medical Record

All new undergraduate and graduate students are required to submit a complete medical record, including vaccination records, to the University Health Services (UHS) and finalize their medical clearance before registration.

Upon acceptance to AUB, students are required to start the medical clearance process by following the steps below:

- Download the Entrance Student Medical Record from: http://www.aubmc.org.lb/clinical/FM/Documents/student_medica_record.pdf
- Complete, sign, and stamp by the students' personal physician or a physician at the AUBMC Family Medicine clinics, which is located in Wassef and Souad Sawwaf Building on Clemenceau Street (phone: +961 1 35 00 00 - Ext. 3000). Students should not forget to take their vaccination records to the physician's visit.
- Activate their AUB net account and complete the necessary information, including immunization and other medical history, and upload the Student Medical Record form using the following link: http://uhs.aub.edu.lb. Students may scan or take a snapshot of the signed form using their phone, provided that the document is readable.

If the submitted form is declined by UHS, an automatic email will be sent to the concerned student. Students will be responsible for updating the vaccination with their personal physician and resubmitting the form.

Old returning students need to update their medical record by contacting UHS at +961 1 35 00 00 - Ext. 3015 or 3013.

All medical records are confidential.

For more information, please contact the University Health Services at +961 1 35 00 00 - Ext. 3015 or 3013, Monday to Friday, from 8:00 am to 5:00 pm.

Students may also visit UHS for all their health concerns (sickness, medical conditions, immunization, medical advice etc.).

National Social Security Fund (NSSF) Medical Branch

Membership in the NSSF (National Social Security Fund) is mandatory by law for all Lebanese and French students, except freshmen and students over 30 years of age. Non-Lebanese students are not eligible to join.

All new students, as well as returning students who have been absent from AUB for several terms and meet the above eligibility criteria, are required to complete the NSSF declaration form in person at the Office of the Registrar window, according to the deadlines circulated to students.

Please read the following carefully before filling out the form:

A- Students who already benefit from NSSF:

- Students who benefit from one of their parent's NSSF, or
- Students who are employed and have their own NSSF number must submit a certificate showing their NSSF number or that of their parents so that the fee can be refunded. The fee is non-refundable after the deadline.

B- Students who do not benefit from NSSF:

- Students who do not benefit from one of their parent's NSSF, or
- Students who are not employed must submit a family registration form إخراج قيد عائلي or copy of their National Identity Card to become enrolled in NSSF and receive their own NSSF number.

Note: AUB staff dependents must also declare.

Health Insurance Plan (HIP)

The Health Insurance Plan (HIP) provides medical and hospital coverage to the AUB community, including academic and non-academic staff, retirees, students, and IC staff and their families.

- Second-class health care coverage is mandatory for all students throughout their years of study at AUB. Therefore, any new or continuing student registered for at least 6 credit hours is automatically enrolled in the Health Insurance Plan (HIP). However, students may be exempted from enrolling in HIP if they provide proof of coverage by another healthcare insurance provider.
- HIP members are required to exclusively use the medical services of the AUB Medical Center (AUBMC). Student HIP coverage is limited to medical care within Lebanon only.
- A 'student' is defined as a person registered for a course of study at the university, whether working towards a degree or not, on either a full-time or part-time basis. Auditors are not considered students.
- While registered, PhD students are eligible for HIP until they complete their degree.
- Graduate students registered for a thesis are eligible to continue HIP coverage for a period of two consecutive years only.
- Students who register at the beginning of the first term are covered by HIP for twelve months, provided they do not graduate, withdraw, or become suspended and/or dropped from the university. HIP fee charges per term are announced annually by the AUB Benefits Office.
- Students who register at the beginning of the second term are covered until August 30 of the same year, provided they do not graduate, withdraw, or become suspended and/or dropped from the university.
- Students who register at the beginning of the summer term are covered until August 30 of the same year. Summer coverage is strictly limited to services provided by AUB Medical Center (AUBMC).
- During the fall and spring terms only, students who are not on campus or outside the vicinity of the AUB Medical Center may seek care at the nearest medical service provider in case of emergency. Reimbursement of the bill will not exceed 80 percent of AUBMC rates.
- Eligible married students may enroll their spouse and children who are living with them in Lebanon at the regular second-class rate, provided they remain duly registered at the university and are HIP members.
- Unlike other HIP members, students are not charged co-payment or cost-sharing applied by the plan to outpatient services.
- Students will be covered by HIP from the beginning of a specific term, provided registration and payment of fees are completed. Coverage ends 48 hours after graduation or upon leaving the university due to withdrawal or being dropped from the university.

Note: These guidelines are provided as a summary for convenience only. They do not define, alter, or limit the official provisions of the plan.

Fees, Expenses, Tuition, and Withdrawal Information

The American University of Beirut (AUB) is a non-profit institution. Costs to students, including tuition and other university fees, are kept at a minimum consistent with the provision of high-quality instruction and adequate facilities and equipment. The university reserves the right to change any or all fees at any time without prior notice. Such changes apply to both currently registered students and new students.

Payment of Fees

- Students are required to pay their tuition fees as well as any additional university charges, including health insurance, internet fees, social activity fees, and contributions to the National Social Security Fund.
- Fee statements can be accessed on the AUB website/AUBsis.
- All students must complete their registration and pay tuition fees, along with any other charges, according to the university calendar available online for both the first and second terms. Late payments may be accepted under special circumstances, within five working days after the official deadline, subject to a late payment fee of $100.
- Students with a zero balance or an outstanding credit balance must notify the Office of the Comptroller—Students Section via email at: compt_sas@aub.edu.lb to finalize their registration.
- Sponsored students, staff dependents, graduate assistants, and student staff members must contact the Office of the Comptroller—Students Accounts Section—before the payment deadline to finalize their registration and confirm their enrollment and attendance.
- Students who require financial assistance must apply to the Office of the Comptroller for deferred payment arrangements (installment plans) for tuition fees, according to the university calendar for the first and second terms. Applications for deferrals will not be accepted after the specified deadline. Deferred payments are not an automatic right and will only be granted under specific, exceptional circumstances. Students who arrange deferred payments must complete all registration procedures within the designated deadlines and make the initial payment by the due date. Deferred payment plans are not available for the summer term in any faculty.
- The Office of the Comptroller is responsible for reviewing applications for deferred payment arrangements and overseeing the administration of such plans.
- Students applying for deferred payment arrangements must pay at least 50 percent of the net tuition amount due. All other charges must be paid in full with no deferrals. A $36 application fee is required regardless of whether the application is approved. If approved, students must pay the remaining tuition balance, the $36 application fee, and 1 percent monthly interest on the deferred amount. All payments must be made by the announced deadlines.
- Due dates are final, and late payment fees will not be waived for any reason.
- Students are expected to fulfill all financial obligations to the university by the specified due date. Failure to do so will result in the university deleting students' courses, and/or placing an encumbrance on the students' records, which will prevent future registration, release of transcripts and diplomas, and access to other university services. In the case of course deletion, students lose the right to sit in classes, take examinations, access Moodle, and enter campus. It is the responsibility of the students to be aware of all registration and fee payment deadlines. Up-to-date schedules for registration and payment of fees are available through the Office of the Registrar. This information, as well as the tuition fee tables, is also available on the following website: www.aub.edu.lb/comptroller/Pages/Student.aspx.

Withdrawals

In the event students withdraw for justifiable reasons after registration, fees are refunded according to the following schedule for the fall and spring terms:

Before the official start of classes	100% of full tuition and other fees
During the first week of classes	75% of tuition
During the second week of classes	50% of tuition
During the third week of classes	25% of tuition

The following schedule applies to refunding fees for the summer term:

Before the official start of classes	100% of full tuition and other fees
During the first week of classes	75% of tuition
During the second week of classes	25% of tuition

For additional information, contact: Office of the Comptroller, Student Accounts Section: www.aub.edu.lb/comptroller/Pages/Student.aspx.

Financial Aid

Undergraduate

AUB offers financial aid to deserving and qualified students in the form of Need-Based Financial Aid Grants, Merit Scholarships, and Student Work-Study.

Need-Based Financial Aid Grants

Need-Based Financial Aid Grants are outright awards of assistance based on demonstrated need as assessed by the Interfaculty Financial Aid Committee.

The following rules apply for Need-Based Financial Aid Grants:

1. Recipients must be enrolled as full-time students. Students registered for fewer than 12 credits must submit a petition with justification to the Office of Financial Aid.
2. These grants are awarded for the normal duration of the student's major plus one additional term, whether the additional term is a result of enrolling for double major, dual degree, or repeated courses. Students may petition the Interfaculty Financial Aid Committee for an extension beyond this limit.
3. These grants are awarded during summer terms only for students who have mandatory summer terms required by their normal program plan.
4. These grants are subject to the following academic standing rules:
   - If a student is placed on academic probation for the first time, a warning will be emailed to the student for signature. The student will be allowed to keep financial aid for the subsequent term. If the student is unable to remove the probation in the subsequent term for any reason, the financial aid will be revoked until the student is no longer on probation (good standing).
   - If a student is placed on academic probation for a second time (whether consecutive or non-consecutive), the financial aid will be revoked until the student is no longer on probation (good standing).
   - If the student is placed on probation for a third time, the financial aid will be permanently revoked.

Prospective Students

The financial aid application period is announced on the Office of Financial Aid website: www.aub.edu.lb/faid. During this period, all prospective students who submit an AUB admissions application and express their intention to apply for Need-Based Financial Aid will receive an email from the Office of Financial Aid containing information on the financial aid process, instructions on how to access the financial aid application, and individual deadlines.

Students applying for a second degree or as transfer students are not eligible to apply for Need-Based Financial Aid.

Enrolled Students

Enrolled students wishing to apply for financial aid must send an email to faid@aub.edu.lb during the application period announced on the Office of Financial Aid website. They will receive a reply with all necessary information.

Only complete applications are evaluated, and the Need-Based Financial Aid Grant is valid for the normal duration of study plus one additional term, provided the student remains in good academic standing. Students may petition the Interfaculty Financial Aid Committee for financial assistance beyond this limit.

Merit Scholarships

AUB offers several merit scholarships for full-time students:

- **AUB Merit Scholarship**
  This is a full-tuition merit scholarship offered to ten newly admitted undergraduates with outstanding academic qualifications. Recipients are selected based on academic achievement and do not have to submit an application. Awards are renewable each undergraduate year, provided that the student maintains a minimum GPA of 3.5 per term. The scholarship is valid for the normal period of study plus one additional term, whether the additional term is a result of enrolling for double major, dual degree, or repeated courses. Students may petition the Interfaculty Financial Aid Committee for an extension beyond this limit.

- **Early Admission/Action/Decision Merit Scholarship**
  Recipients of early admission, early action, and early decision are granted tuition scholarships of 30 percent, 25 percent, and 20 percent, respectively. To retain this scholarship, students must enroll in the major they were accepted into for their initial term and maintain a minimum GPA of 3.5 per term. This scholarship is valid for the normal period of study plus one additional term, whether the additional term is a result of enrolling for double major, dual degree, or repeated courses. Extensions beyond this limit require a petition to the Interfaculty Financial Aid Committee.

- **SAT Scholarship**
  SAT Scholarship recipients are granted 10 percent tuition scholarship. To retain this scholarship, students must maintain a minimum GPA of 3.5 per term. SAT Scholarship is valid for the normal period of study plus one additional term, whether the additional term is a result of enrolling for double major, dual degree, or repeated courses. Extensions beyond this limit require a petition to the Interfaculty Financial Aid Committee.

- **Lebanese Baccalaureate Scholarship**
  In cooperation with the National Council for Scientific Research (CNRS), AUB grants full-tuition scholarships to the top three students in each of the four sections of the Lebanese Baccalaureate, provided they maintain a minimum GPA of 3.5 per term. The scholarship is valid for the normal period of study plus one additional term, whether the additional term is a result of enrolling for double major, dual degree, or repeated courses. Students may petition to the Interfaculty Financial Aid Committee for extensions beyond this limit.

- **Liberal Arts Scholarship**
  Liberal Arts Scholarship promotes liberal arts education in Lebanon and the MENA region, with a vision that emphasizes the importance of undergraduate studies in humanities and social sciences, including the following programs: Arabic language and literature, archaeology, art history, elementary education, English language, English literature, history, philosophy, sociology-anthropology, and studio arts. Interested candidates must complete both an admissions and a financial aid application, indicating only one chosen field of study. Freshmen students are not eligible but may apply after successfully completing their freshman year. The scholarship is valid for the normal period of study plus one additional term, whether the additional term is a result of enrolling for double major, dual degree, or repeated courses. Students may petition to the Interfaculty Financial Aid Committee for extensions beyond this limit. Awardees will receive 70 percent of tuition fees provided they remain in good academic standing.

Need-Based Work-Study Scholarship

Students who receive Need-Based Financial Aid Grants and request additional assistance may be recommended for the Work-Study Program. Those enrolled in this program are expected to work a minimum of 50 hours per month during a term and are awarded 10 percent of tuition fees. The work type and place will be assigned to the student by the Office of Student Affairs, and the earned amount is deducted from the student's tuition.

Governmental Student Aid for North American Students

US Federal Student Loans

American students pursuing their studies at AUB may apply for low-interest federal loans offered by the US Treasury in the form of Direct Stafford and PLUS loans. Applications are submitted annually online at https://studentaid.gov/h/apply-for-aid/fafsa. Students who are American citizens or permanent residents, enrolled at AUB in a regular degree program, and maintaining satisfactory academic progress are eligible for these loans.

The financial need of eligible students is assessed by the Office of Financial Aid based on criteria established by the US Federal Student Aid program. Students must start repaying these loans after graduation following a six-month grace period.

AUB and its Office of Financial Aid have developed a consumer information portal to provide details about the university and the Federal Student Aid Loans it offers, as part of its response to the Higher Education Act (HEOA) of 1965, as amended. The university discloses general information and reports on various policies, procedures, and operations related to academic programs, admissions and financial aid, student outcomes, and health and safety.
The consumer information portal is found at: www.aub.edu.lb/faid/Pages/Consumer-Information.aspx.

Canadian Grants and Loans

The Governments of Canadian provinces offer student grants and loans to eligible Canadian students enrolled at AUB.

Students should consult the student grants and loans service of their province to determine their eligibility for student grants and loans, find out how much they can receive, and apply for the student grants and/or optional loans through a single application.

Provinces and territories may cover one or more of the following: tuition, books, equipment and supplies, mandatory student fees, and living expenses.

A list of provincial and territorial student aid offices with links are found at:
https://www.canada.ca/en/services/benefits/education/student-aid/grants-loans/province-apply.html.

AMERICAN
UNIVERSITY
OF BEIRUT
Assessment and Testing Center

Mission

The Assessment and Testing Center supports AUB's mission of academic excellence by providing a high-quality, secure, and accessible testing environment. The center facilitates a broad range of assessments that contribute to academic and professional development while upholding the highest standards of quality, integrity, and confidentiality.

Vision

The center aspires to be a regional leader in testing services by continuously enhancing its offerings to meet international standards and the evolving needs of the academic and professional communities. In alignment with AUB's mission, the center strives to create a secure, inclusive, and supportive testing environment for all.

Services Offered by the Assessment and Testing Center

The Assessment and Testing Center offers a comprehensive range of testing services, including:

1. Language Proficiency Testing (AUB-EN, AUB-IET, AUB-EET): language proficiency assessments for academic admission and recruitment purposes.
2. Writing Placement Testing (WT): assessments used to place students into appropriate writing courses within AUB's Communication Skills Program (CSP).
3. College-Level Skills Testing (Territorium EPP® E-Proficiency Profile): assessments designed to measure essential academic skills such as critical thinking, reading, writing, and mathematics.
4. Testing for International Organizations (British Council: IELTS, ETS: Digital SAT): globally recognized assessments that support students in meeting international educational and professional standards.
5. Proctoring Services for Distance Education: secure proctoring services for students enrolled in distance education programs from other institutions, ensuring the integrity of remote exams.
6. AUB Faculty Exams: secure testing environments that enable AUB faculty to administer exams to students.

Facilities

The Dr. Samer Kamil Al-Rayyes Assessment and Testing Center is located on the fifth floor of Nicely Hall. The facility includes 192 desks, 120 of which are computer workstations for online exams, and is equipped with surveillance systems to ensure confidentiality and exam integrity. The environment is designed to be quiet, comfortable, and conducive to focused testing.

AMERICAN UNIVERSITY OF BEIRUT

Center for Community Engagement (CCE)

Executive Director	Shibli, Rabih
Administrative Assistant	Bou Fadel, Mireille
Staff and Research Assistants	Abou Farraj, Lina; Fleihan, Hala; Chahine, Karen; Bou Matar, Sarah; Massalkhi, Fatima; Ziadeh, Raghda; Gabriel, Alan; Khayata, Rim; Bzeih, Bachar

Vision

To position AUB as a civic convener and frontline responder to societal conflicts and challenges, while realizing the potential of university students as changemakers in local and global contexts.

Mission

To leverage operational research, campus community, and socially responsive partnerships to address societal challenges, while equipping students with the professional skills necessary for ethical and effective crisis management. This mission is reflected in three cross-cutting tenets:

1. **Engaged Scholars Program (ESP)**
   Each year, CCE guides more than 700 undergraduate and graduate scholarship recipients from Lebanon, the Middle East, Africa, and Afghanistan through a four-track journey beginning with volunteering rotations, advancing to internships with community-based organizations, and culminating with the development of Community Engagement Projects (CEPs), which are grounded in both scholars' expertise and local community needs. Throughout this process, scholars are provided with sequentially layered skills-building workshops enabling them to complete program milestones.
2. **Fundamentals in Community Engagement (FCE)**
   CCE offers three-credit Community Engaged Learning courses as part of AUB's core General Education curriculum. Students first enroll in Phil 200A, a one credit self-paced online prerequisite that introduces the principles and values of community engagement and features field reports from AUB student-led community projects. The remaining two credits are completed through Phil 200B and Phil 200C, which combine in-person seminars with supervised field work and volunteering rotations with partners from the public sector and community-based organizations. This course sets the foundation for experiential learning to become an integral component of the academic journey for students across all disciplines.

3. **Strategic Community Initiatives (SCIs)**
   CCE plays a leading role in empowering the most vulnerable populations through high impact multi-year interventions by first identifying themes, setting a roadmap for project development, and establishing strategic partnerships with academia, stakeholders, and funding agencies. Each contextualized SCI begins as a meticulously designed prototype aimed at tackling local complexities; it must be flexible, resilient, and positioned in the most appropriate setting to thrive. Insights, common practices, and readily available resources within the targeted communities provide invaluable building blocks that increase local buy-in, ownership, and the sustainability of the prototype. By leveraging cutting-edge operational research, SCIs produce tangible solutions that can be expanded to cover a wider scope within the same targeted community and transferred to various locations enduring similar challenges.

AUB's community engagement through CCE has earned international recognition. AUB has been designated as the "most civically engaged campus" in the Middle East and North Africa, and has won the MacJannet Prize for Global Citizenship, the MIT Enterprise Forum 'Innovate for Refugees' Award, as well as the Fritz Redlich Human Rights Award from Harvard University.

AMERICAN
UNIVERSITY
OF BEIRUT
The Writing Center

Interim Director	Baalbaki, Rula
Administrative Assistant	Takkoush, Sarah

The Writing Center's mission is to support the teaching and learning of writing on campus. Established in 2004, the center fulfills this mission through its peer tutoring program, support for General Education Writing in the Disciplines courses, and various special projects and events at AUB and beyond. Both the administration and tutors of the center are committed to research and community outreach. The Writing Center offers support to AUB students, staff, and faculty via one-on-one consultations and workshops on individual or group writing projects at any stage of development. Undergraduate and graduate students serve as tutors, working to help individuals become stronger writers in both English and Arabic. Appointments can be scheduled through the online platform: https://aub.mywconline.com.

Writing resources, along with more information about Writing Center tutors and services, are available on the following website: https://www.aub.edu.lb/fas/writing_center/Pages/default.aspx.

The Writing Center also supports faculty members through workshops on writing in different genres, small group meetings, and individual consultations. Writing Center staff collaborate with faculty members as they develop, assess, and revise courses that fulfill the General Education-mandated requirement to offer Writing in the Disciplines instructions in every major. In addition, special discussion groups organized by the tutors are also offered to read and analyze certain issues of style as related to the sense of the written texts in different genres. Workshops for programs or departments and individual consultations for faculty seeking to enhance writing assignments and activities in their courses can be scheduled by emailing the Writing Center directly at writingcenter@aub.edu.lb.The Writing Center office is located in West Hall Basement.

AMERICAN
UNIVERSITY
OF BEIRUT
Office of Student Affairs

The Office of Student Affairs oversees student activities, athletics, counseling, accessible education, student housing, and career and placement services. It also manages university-wide operations, such as the new student orientation, student elections, and the work-study program. The office is dedicated to enhancing students' overall well-being and create opportunities for them to enrich and broaden their educational experience.

Contact Information
West Hall, Ground Floor
Tel: +961-1-374374 Ext. 3170
Fax: +961-1-744478
Email: osa@aub.edu.lb
Website: www.aub.edu.lb/SAO/Pages/default.aspx

Student Activities

The Department of Student Activities enhances the student experience beyond the classroom by offering opportunities for student development through co-curricular activities that complement academic programs at AUB. The Department of Student Activities strives to enrich students' intellectual, ethical, and social development by engaging them in university and community events and providing leadership opportunities. Our aim is to foster holistic student development. Students can join clubs, societies, student government, student publications, the AUB Outdoors Festival, and other major student-led events.

All student activities, whether on or off campus, must be approved by the Department of Student Activities and the Dean of Student Affairs. The department facilitates these activities and ensures that students follow proper event-planning procedures. West Hall building is considered the student hub, hosting most student activities as well as various AUB events sponsored by faculties, departments, centers, and alumni.

Contact Information
West Hall, Ground Floor
Tel: +961-1-374374 Ext. 3197
Email: studentactivities@aub.edu.lb
website: www.aub.edu.lb/SAO/activities/Pages/default.aspx

Charles Hostler Student Center (CHSC)

The university offers a wide range of sports, fitness, and recreational programs through its Athletics Department. The Charles W. Hostler Student Center (CHSC) serves as the hub for athletics, recreation, and wellness on campus.

CHSC is comprised of three buildings. Located on the second floor of the pool building and overlooking the Corniche is a 6-lane semi-Olympic swimming pool fully equipped for swimming, jumping, and water polo competitions. Adjacent to the pool building, the official-size greenfield is surfaced with artificial turf and surrounded by a 6-lane, 400-meter track.

The gymnasium building houses three full-size multipurpose courts for basketball, volleyball, handball, futsal, badminton, and table tennis. It also hosts two annual engineering competitions in robotics and civil design. Additional activities include two free-weight areas, two cardiovascular training zones, a stretching area, an activity room for fitness classes, yoga, dance, martial arts, and two squash courts.

The third building features a 280-seat auditorium and a rooftop amphitheater with natural grass terraces. The auditorium hosts student classes, exams, TED talks, conventions, and other events.

During the summer, AUB opens its private beach for the community to enjoy swimming and recreation. The facilities include a shallow pool for children and a beach volleyball court, providing a relaxing environment by the crystal blue waters.

Student-athletes may join one or more of AUB's 26 varsity teams, collectively known as the AUB Phoenix. In fall 2025-26, 1,906 students registered for tryouts and 532 in the spring tryouts. 515 were selected in the fall. Since 2023, AUB has been competing in the Federation Sportive Universitaire du Liban (FSUL) which organizes collegial sports competitions for 24 universities across Lebanon.

In Addition, AUB will participate in two main events: the 27th Panathlon Club University, PCU University Games 2026 in Antwerp, Belgium and the World Inter-Universities Conference WIUC 2026 in Rome, Italy.

AUB Athletics will award three full tuition-free scholarships to highly distinguished athletes for the years 2026-27, along with several partial scholarships. The President's Athletic Scholarship and the Distinguished Athlete Scholarship Award recognize student-athletes who have made significant contributions to their respective sports. Partial athletic scholarships are also available based on athletic performance and achievements during the season.

The following are the varsity sports a student-athlete can join:

Basketball (Men, Women)	Swimming (Men, Women)
Rugby (Men, Women)	Futsal (Men, Women)
Track and Field (Men, Women)	Ultimate Frisbee (Men, Women)
Football (Men, Women, and Junior Varsity)	Handball (Men, Women)
Archery (Men, Women)	Volleyball (Men, Women)
Table Tennis (Men, Women)	Tennis (Men, Women)
Badminton (Men, Women)	Taekwondo (Men, Women)
Wrestling (Men, Women)	Jujitsu (Men, Women)
Squash (Men, Women)	Cheerleading (Men, Women)

Contact Information
Charles Hostler Student Center
Tel: +961-1-374374 Ext. 3208 or 3217
Email: chsc@aub.edu.lb
Website: www.aub.edu.lb/sao/sports/Pages/default.aspx

Student Housing

AUB is one of the few residential universities in the Middle East offering a vibrant campus environment where extracurricular activities thrive and strong communities flourish.

Priority for housing is given to undergraduate applicants, starting with freshman students (eligibility criteria available on the Student Housing homepage).

Students need to apply via AUBsis. Application steps can be found under Important Housing Information on the Student Housing website: www.aub.edu.lb/sao/housing/Pages/default.aspx. Students are strongly encouraged to apply as soon as the application portal is open, as spaces are in high demand.

Housing charges appear on the student's statement of fees after registration and vary depending on the accommodation type. Student Housing Rates are published here: www.aub.edu.lb/SAO/housing/Pages/Housingrates.aspx.

Guests affiliated with AUB programs are also not forgotten at AUB. For more information on available room categories, rates, and booking details, visit our dedicated page through the following link: www.aub.edu.lb/SAO/housing/Documents/GUEST-POLICY-2324.pdf

Residence Halls

AUB has eight student residence halls: six for women and two for men. All halls are equipped with heating, air-conditioning, hot water, washing machines, dryers, irons, wireless internet, and vending machines with snacks and soft drinks. Rooms are furnished with a bed, desk, chair, and closet.

- **Women's Residence Halls:** Four are located on lower campus overlooking the Mediterranean, one is located on upper campus, and one off-campus dorm is in the heart of Hamra, within short walking distance of campus.
- **Men's Residence Halls:** Both are located in the west part of upper campus, overlooking the splendid Mediterranean Sea and close to Bliss Street with its abundance of shops.

Each hall features a reception area, a shared kitchen, a social lobby, and laundry facilities.

Contact Information
West Hall, Ground Floor
Tel: +961-1-374374 Ext. 3175, 3183
Email: studenthousing@aub.edu.lb
Website: www.aub.edu.lb/sao/housing/Pages/default.aspx

Career Hub

The Career Hub at AUB empowers students and alumni to navigate and achieve their career goals through personalized guidance, innovative professional development resources, strong industry connections, and soft skills training. It prepares students for the workplace and supports a smooth transition from student life to professional careers.

The Career Hub advances AUB's institutional mission of graduating "individuals committed to creative and critical thinking, lifelong learning, personal integrity, civic responsibility, and leadership."

The Career Hub strives to promote:

Career exploration and decision-making by helping students navigate career options and develop effective planning skills through large-scale events and individual career guidance meetings.

Skill development by equipping students with competencies valued by employers and industry professionals, enhancing their professional image through in-house and industry-led career workshops, as well as one-on-one sessions.

Experiential learning by partnering with industry to offer students internships, job shadowing opportunities, and corporate visits that allow them to 'learn through doing.' This hands-on approach encourages discovery, exploration, and reflection, better preparing students for future careers.

Career placement by assisting AUB students and graduates in securing full-time employment, internships, and part-time jobs. We also organize on-campus and virtual events that connect students and alumni with employers for career development and placement purposes.

Employer development by fostering and maintaining long-term relationships between AUB and employers at both the local and regional levels.

Major Career events by hosting the annual Career Fair each spring, along with multiple recruitment events throughout the year. These events provide students with opportunities to network with top employers, explore career paths, and secure suitable jobs.

Contact Information
West Hall, Room 338
Tel: +961-1-374374 Ext. 3172
Fax/Direct Phone Number: +961-1-744488
Email: careerhub@aub.edu.lb
Website: www.aub.edu.lb/SAO/cps/Pages/default.aspx

Work-Study Program

The Office of Student Affairs coordinates an extensive work-study program that offers on-campus employment opportunities for eligible full-time undergraduate and graduate students in good academic standing. The program enables students to work with AUB faculty and staff, fostering stronger connections within the university community.
Students can apply through AUBsis within the deadlines announced by the Office of Student Affairs. Placements are determined based on the date of application, demand, qualifications, and job availability. Students may work up to 80 hours per month during the fall and spring terms, and up to 60 hours per month during the summer term.

Each year, more than 700 students participate in the program, gaining the opportunity to contribute to their educational expenses while also developing job skills by working with faculty, administrators, and staff across campus offices and the Medical Center.

Contact Information
West Hall, 3rd floor
Tel: +961-1-374374 Ext. 3177
Email: wsp@aub.edu.lb
Website: www.aub.edu.lb/SAO/Pages/Work-Study-Program.aspx

Counseling Center

The Counseling Center provides a supportive environment and ensures access to quality counseling services to promote mental, psychological, and emotional well-being, contributing to academic success and student self-actualization. It addresses the mental health needs of the university community while upholding students' right to mental health in an engaging and tolerant environment that fosters lifelong learning, growth, and development.

Our services include individual counseling with licensed clinical psychologists, short-term therapy and crisis intervention, group counseling that encourages peer connection and shared learning, as well as workshops designed to strengthen coping skills, well-being, and academic performance. In addition, the center offers peer counseling through a structured program that trains students to provide empathetic and nonjudgmental support to their peers. We also prioritize community capacity-building by sensitizing AUB faculty and staff through awareness and training programs that deepen their understanding of student mental health and strengthen the university's supportive network.

The Counseling Center offers short-term mental health services that are strictly confidential and free of charge for students.

Contact Information
West Hall, 2nd floor
Email: counselingcenter@aub.edu.lb
Tel: +961-1-374444 Ext. 3196
Website: www.aub.edu.lb/SAO/Pages/Counseling-Center.aspx
Online Booking System for Appointments: AmericanuniversityofBeirut1@mail.aub.edu/bookings/

Accessible Education Office: Disability Services and Learning Support

AUB is committed to fostering an accessible university community that welcomes, respects, and values individuals from diverse backgrounds and abilities. In line with this mission, the Accessible Education Office (AEO), under the Office of Student Affairs, works to ensure access for students with qualified disabilities to all academic programs at AUB.

To achieve this goal, the AEO collaborates with students, faculty, and staff to provide reasonable accommodations that remove barriers to participation in a robust and well-rounded student experience —without altering the academic and technical requirements of the program and/or activity. These accommodations are offered in accordance with AUB's commitment to these goals, its non-discrimination policy and practices, as well as relevant US federal law.

The AEO works in an individual and confidential manner with students who choose to disclose their disabilities. Upon admission to AUB, students requiring special accommodations due to a documented disability or condition must contact the AEO to ensure the necessary support is provided for their learning experience.

Beyond accommodations, the AEO also plays an active role in shaping an inclusive and accessible campus by empowering and supporting students with disabilities through club collaborations, advocacy, and awareness campaigns. In addition, the AEO provides training and works closely with accessibility partners to promote and enhance inclusive practices across the AUB community.

Contact Information
Accessible Education Office
Tel: +961-1-350000 Ext. 3151, 3144
Email: accessibility@aub.edu.lb
Website: www.aub.edu.lb/SAO/Pages/Accessible-Education.aspx

Office of International Programs (OIP)

Undergraduate

The Office of International Programs (OIP) promotes internationalization and diversity at AUB by initiating, developing, and administering institutional partnerships that foster both incoming and outgoing students, faculty, and staff mobility. Through its Study Abroad Program, OIP promotes exchange opportunities and advises AUB students, faculty, and staff wishing to pursue international academic experiences that are academically challenging, professionally relevant, and personally engaging. OIP supports all international students at AUB, enabling them to integrate into the community and enjoy a rich academic and cultural experience.

Contact Information
West Hall, 3rd floor, Room 313
Tel: +961-1-374374 Ext. 3186, 3176, 3146
Email: oip@aub.edu.lb
Website: www.aub.edu.lb/oip

International Student Services

The Office of International Programs provides support to all international students studying at AUB by providing the following services:

- Pre-arrival support and visa assistance (following admission to AUB)
- On-site orientation, mentoring, and intercultural activities, as well as explanations of public government services, processes, and on-campus procedures
- Support in obtaining student residence permits and/or following up on transactions at immigration authorities
- Support in reporting theft or loss of legal identification documents at local authorities
- Forums—both electronic and in-person—for interaction with other AUB student populations
- For international degree-seeking students, advice on studying abroad as part of their AUB degree

Visas and Residence Permits

International students joining AUB who do not hold a Lebanese passport or Lebanese identity card must have their foreign passports valid for a period of no less than 12 months from the date of joining the university. Non-Lebanese students should also check with the nearest Lebanese Embassy or consulate in their country as to whether they require an entry visa in order to legally enter Lebanon or if they are eligible to obtain an entry visa at the airport. The OIP may assist students in securing their visas to Lebanon. Students who wish to benefit from OIP visa assistance must indicate this in their confirmation letters upon acceptance. Further information is available on the OIP website.
Once registered at AUB, all students who do not hold Lebanese passports and wish to remain in Lebanon beyond the validity of their entry visas are required to obtain a residence permit before their visa expires. Students must apply for this permit within one month of arriving in Beirut —and only after registering and paying their AUB tuition fees.
The Office of International Programs (OIP), in coordination with the Office of the Registrar, assists registered non-Lebanese students in obtaining the necessary certificates required for securing residence permits from the Lebanese authorities. Information regarding the residence permit process is communicated at the beginning and throughout each academic term and is also available on the OIP website.

Study Abroad and Student Exchange

AUB undergraduate students may spend a year or a term abroad in an approved program of study without losing their status at AUB. They may apply to an established program at a university that has an exchange agreement with AUB or initiate their own proposal for study abroad at an accredited university of their choice. In both cases, an application (see below), approval of their faculty/school, and clearance from The Office of International Programs (OIP) are required. Study abroad and exchange programs provide students with the opportunity to travel to another country, experience a new culture, and build connections with students and faculty members at host institutions. These in-person interactions are a vital part of the overall experience. As such, only in-person study abroad and exchange programs are approved at AUB.

Definitions

Exchange Students

Students on exchange programs at universities with which AUB has bilateral exchange agreements, pay the standard AUB tuition rate, based on a 15-credit course load.

Study Abroad Students

Students on study abroad programs at universities with which AUB does not have a bilateral exchange agreement are required to pay host university fees at the receiving institution. However, they must continue to pay the AUB miscellaneous fees as applicable. Summer abroad students are exempted from the AUB miscellaneous fees.
Students wishing to go on exchange or study abroad programs must complete both the AUB Study Abroad Course Approval Petition and the host university's application. Students are responsible for the completion of both sets of application forms by the assigned deadlines.

Procedures for Study Abroad and Exchange Students

To spend a term or up to a year abroad, all students must meet the following eligibility criteria:

1. Students must have completed 24 sophomore-level credits at AUB to apply for a study abroad program lasting up to one academic year, unless applying for a summer abroad program.
2. Freshmen students may spend a summer abroad upon the completion of 24 credits.
3. Students may earn a maximum of 30 credits in a study abroad program without losing their status as AUB students.
4. Students must meet the AUB residency requirements as stipulated in the General University Academic Information section.
5. Students may not exchange or study abroad during their final term at AUB.
6. To be considered for exchange and study abroad programs, students should have a minimum cumulative GPA of 3.0.

Students will receive credit for all course work completed abroad, provided that the following conditions are met:

a. The relevant academic departments at AUB have pre-approved the courses through the Study Abroad Online Petition System.
b. Students achieve a minimum passing grade equivalent to the AUB grade of C+. Credits received on study abroad and exchange programs are considered to be transfer credits and will appear as pass/fail on the AUB transcript.
c. The host university provides an official transcript of record directly to the Office of International Programs. An official transcript from the host institution must be received by AUB in order for credits to be successfully transferred.
d. None of the courses taken abroad may be online but up to 25 percent of them may be hybrid.
e. Certificate of Physical Attendance is required.

Note:

a. Courses taken abroad may be accepted at AUB and require the approval of the chairperson of the academic department offering the course at AUB AND the Academic and Curriculum Committee of the student's faculty/school.
b. Courses that may satisfy the AUB General Education (GE) requirements must be approved by the GE committee. Students are required to submit a petition through their respective faculties for each course to be evaluated.
c. The maximum academic load during a regular term abroad is equivalent to 17 AUB credits while the minimum is 12 credits. Students who opt to take more than 17 or less than 12 AUB credits, must submit a petition to their faculty/school and provide OIP with proof of approval prior to going abroad. Nevertheless, no more than 30 credits can be transferred back to AUB.
d. Students who decide to change one or more of their pre-approved courses once they are at the host university must contact their department chair by email and submit the Study Abroad Petition for approval of the replacement or added course(s) within one month of the beginning of the AUB term. Failure to do so may result in denial of course transfer upon return to AUB.

Registration Process at AUB for Students Approved to go on Study Abroad or Exchange Programs

To maintain their status as active students at AUB while abroad, students are required to:

- Submit the completed AUB Study Abroad Course Approval Petition by the assigned deadline;
- Attend a mandatory OIP pre-departure meeting;
- Complete the Final Confirmation and Clearance Form and submit it to OIP by the assigned deadline;
- Pay all fees due to AUB by the assigned deadline;
- Not register for classes at AUB or at any other institution of higher learning, either in-person or online, where there is an overlap in time.

Once students complete all of the steps above, their registration status will appear as either EXPR (Study Abroad) or EXCH (Exchange), depending on the type of program they wish to be enrolled in. Students will then be able to maintain access to AUBsis and online library resources. Study abroad and exchange students will have the same privileges as continuing students on campus.

Credit Transfer for Students Upon Return from Their Term or Year Abroad

To ensure successful credit transfer upon returning to AUB, students must:

- Obtain an official transcript from the host university and request that it be sent directly to the Office of International Programs (OIP):
  - Hardcopy official transcripts should be mailed to the following address:
    AUB / Office of International Programs
    West Hall, 3rd Floor, Room 313
    1107 2020, Beirut, Lebanon
  - Electronic official transcripts: If the host university issues only electronic transcripts, they must be:
    - Certified by a university official with a certificate provided by a recognized security vendor, or
    - Encrypted and accessible only to the recipient.
      These should be emailed to: aubabroad@aub.edu.lb
- Submit an Exchange or Study Abroad Testimonial Survey.

For a complete list of exchange and study abroad opportunities at AUB, or to review the study abroad guidelines, please visit www.aub.edu.lb/oip or go to Room 313, West Hall.

Study Away – AUB and AUB Mediterraneo

Eligible AUB and AUB Mediterraneo students can spend up to a full academic year (two regular terms) in addition to one summer term at the host campus. The following conditions must be met to establish eligibility:

- Undergraduate students must be registered as full-time students at their home campus. They must have successfully completed at least twelve (12) credits or twenty-four (24) ECTS of study at their home campus prior to applying for study away.
- Undergraduate students are not allowed to study away during their final term of study.

For AUB students, this mobility program offers the opportunity for taking part in undergraduate programs at AUB Mediterraneo that can enhance their academic, personal, and professional development.

Credit Transfer

AUB and AUB – Mediterraneo students participating in this mobility program will receive the credits and grades associated with the course work completed at the host campus provided that the relevant academic departments/programs at the home campus have pre-approved the courses. All academic rules and regulations will apply at the "home campus" once the students return from the Study Away program, as per the study guide for AUB Mediterraneo students and the University Catalogue for AUB students.

OIP facilitates several study abroad and exchange programs including Erasmus+ for undergraduate students. AUB's growing number of international partner institutions are listed on the following website: https://www.aub.edu.lb/oip/pages/search.aspx.

OIP Resources for Faculty

The Office of International Programs (OIP) serves as a central resource for faculty engaged in international education, mobility, and global collaboration. OIP supports faculty by providing guidance on international standards and best practices related to credit and grade transfer, when applicable. OIP maintains an up-to-date list of institutions, consortia, and universities with which AUB has formal agreements for student, staff, and faculty mobility. OIP also advises faculty on the development of new student exchange agreements and institutional partnerships. All exchange agreements require provost approval prior to implementation. Faculty interested in exploring new international collaborations are encouraged to consult with the director of OIP at an early stage of the process.

AMERICAN UNIVERSITY OF BEIRUT

General University Academic Information

Undergraduate

Advisers

Academic advising is a collaborative process that relies on personal responsibility, regular interaction, and a positive rapport between students and their faculty/school. The American University of Beirut provides students with an advising experience that supports personal development, enhances academic performance, and ensures progress toward graduation.
Each student is assigned an academic adviser who provides guidance on academic development, career planning, and educational choices. Guidance on registration, curriculum planning, and monitoring progress toward degree completion may be provided either by the academic adviser or, depending on the program, by a designated registration adviser or advising center. The names of advisees and their assigned advisers are available through the AUB Student Information System (AUBsis). The alternate PIN (a secure code given to the student by the adviser) is mandatory for new students during their first year, freshman and majorless students until they formally join a major, students undergoing inter-faculty or intra-faculty transfers, old returning students, and students placed on academic probation until the probation is cleared.

Categories of Students

Full-Time Students

Students are considered full-time if they register for a minimum of 12 credits per regular term (fall or spring).

Part-Time Students

Students are considered part-time if they register for fewer than 12 credits per regular term (fall or spring). The part-time category is limited to the following students:

- AUB staff members pursuing a degree
- Diploma students
- Degree-seeking students who need fewer than the minimum credit load and are granted permission through an online petition by the appropriate faculty/school committee for one of the following reasons:
  - Potential graduation
  - Curriculum restrictions such as freshman requirements after three registrations, students not working for a degree, visiting students, and course auditing students
  - Health-related issues

Unapproved degree seeking part-time students will be dropped.

Non-Degree Students

This category includes students who are not working for a degree. Non-degree students may include visiting, cross-registered, exchange, study abroad, study away, special (not working for a degree), or course auditing students.

Course Audit

Students who wish to attend individual classes without receiving credit may apply for course audit.

- AUB students may apply for a course audit through the online petition system.
- Non-AUB students must fill out the following form, which is available on the Office of the Registrar's website, have it signed by the concerned instructor, and email it to: regist@aub.edu.lb to obtain approval. https://www.aub.edu.lb/Registrar/Documents/auditcourse-form.pdf

To be eligible for a course audit, applicants must:

- Hold either a baccalaureate II or its equivalent, or a bachelor's degree or its equivalent from a recognized academic institution.
- Obtain approval from the instructor of the course.
- Register for the course audit at the Office of the Registrar.
- Pay the required tuition fee at the Students Section of the Office of Comptroller.

Course audit is not available for laboratory, studio, or seminar courses.

Course audit is allowed based on available seats, so registration takes place after that for regular students.

The university does not grant academic credit for course audit.

Majorless Status

Students who have been admitted as majorless and have not yet chosen a major, or who are in the process of selecting a new major, are given the status of "majorless." Students must be admitted to a major at least one term prior to graduation through the transfer process.

Students may be considered majorless based on a faculty/school recommendation because of either challenges in following their selected study path or an intention to change major. Such students must be accepted into a major by the end of their third term as majorless; failure to do so may result in dismissal from the university.

English Proficiency

Grades on papers (term papers, essays, or examinations) and a final course grade may be lowered due to poor quality of writing.

The Intensive English Course (IEC), ENGL 100 A/B, is intended for students who have been admitted to the university but have not met the Readiness for University Studies in English (RUSE) requirement. The minimum scores for placement in IEC are 25 on AUB-EN, 52 on TOEFL (IBT), or 5.5 on IELTS.

IEC is an integrated skills course that develops students' linguistic and communicative competence in preparation for a full-time university study. Through a wide range of activities and readings across disciplines, students are exposed to campus culture and academic discourse. Regular practice in oral and written activities helps students develop appropriate and effective English expression.

Students enrolled in IEC may register for only one or two regular university courses (up to a maximum of 6 credits). This allows them to earn degree credits while working on achieving the level of English needed for carrying a full course load in the regular program. These courses are limited to Arabic and mathematics/ statistics/computer literacy courses (maximum 6 credits) within the Faculty of Arts and Sciences or equivalent courses in statistics in the Faculty of Agricultural and Food Sciences, the Suliman S. Olayan School of Business, and the Faculty of Health Sciences.
Students who successfully complete their IEC will automatically be placed in their class and major and will be required to complete ENGL 102.

Students who do not pass IEC by the end of the second term will be dismissed from the university. IEC students are subject to the same attendance requirements as all other AUB students.

For more information about AUB's English language and writing requirements, visit the Communication Skills Program website at: https://www.aub.edu.lb/fas/english/Commskills/Pages/Placement.aspx.

General Education Requirements

Refer to the General Education Requirements section under the Faculty of Arts and Sciences section.

Premedical Requirements

The minimal premedical requirements are summarized below:

A bachelor's degree in any field of study is required. While most applicants to the Faculty of Medicine have traditionally held degrees in biology or chemistry, applicants from other academic backgrounds are strongly encouraged to apply. Regardless of major, students choosing a premedical track must complete the core premedical courses required for admission to the Faculty of Medicine. These courses may be taken as major or elective requirements depending on major, and may result in requiring a greater total number of credits.

Premedical Core Course Requirements

The minimal course requirements for admission to the MD program at AUBFM are listed below (the courses in parentheses are AUB courses that fulfill the requirements), irrespective of the track followed in high school or the Lebanese Baccalaureate.

Biology: 7 credits: one course in general biology with laboratory (BIOL 201, 4 credits) and one course in biochemistry (BIOL 220, 3 credits; BIOC 255, 3 credits for students majoring in medical laboratory sciences; NFSC 261, 3 credits for students majoring in nutrition and dietetics; and BIOC 246, 4 credits for students majoring in nursing).

Chemistry: 8 credits: 3 credits in general chemistry (CHEM 201, 3 credits), 5 credits in organic chemistry with lab (CHEM 208, 3 credits; CHEM 209, 2 credits). Biology and chemistry majors will take CHEM 210, 211, and 212 to fulfill the requirements of organic chemistry.

Computer Science: 3 credits in introductory programming (CMPS 203, 3 credits; or its equivalent EECE 230 given to engineering students).

English: 6 credits in academic English (ENGL 203 and ENGL 204, or ENGL 206).

Physics: 4 credits in a physics course for the life sciences with laboratory (PHYS 206 and 206L, 4 credits). Biology and chemistry majors may take other courses as dictated by their majors in lieu of PHYS 206 (e.g., biology majors will take PHYS 204, 204L, 205, and 205L, and chemistry majors will take PHYS 211 and PHYS 211L). Other majors can take PHYS 210 and PHYS 210L as dictated by their majors in lieu of PHYS 206 and PHYS 206L.

Psychology: 3 credits in general psychology (PSYC 201, 3 credits).

Sociology: 3 credits in general sociology (SOAN 201, 3 credits).

Humanities: 6 credits. Any two courses recognized by the university as fulfilling "cultures and histories" requirements may be taken, excluding some courses listed under point 2 below. At AUB, students are encouraged to consider minoring in the medical humanities. The following possibilities are recommended - but not mandatory - to fulfill the humanities requirements:

- Any 2 CVSP/CHLA courses
- One CVSP/CHLA course and one English or Arabic literature humanities course, excluding those listed below:
  - ENGL 227 Introduction to Language
  - ENGL 228 Phonetics
  - ENGL 229 History of the English Language
  - ENGL 233 Introduction to Translation
  - ARAB 211/212 Survey of Arabic Grammar
  - ARAB 213/214 Introductory Biblical Hebrew
  - ARAB 215 Introductory Syriac
  - ARAB 224 Arabic Stylistics and Metrics
  - ARAB 227 Arabic Linguistics
  - ARAB 228 Arabic Linguistics
- One CVSP/CHLA and one philosophy course from the following:
  - PHIL 210 Ethics
  - PHIL 214 History of Modern Philosophy
  - PHIL 216 Political Philosophy
  - PHIL 221 Philosophy of mind
  - PHIL 222 Philosophy of Science
  - PHIL 224 Philosophy of Religion
  - PHIL 225 History of Moral Philosophy
  - PHIL 230 Philosophy of Plato

Medical College Admission Test (MCAT) Requirement

A competitive score in the MCAT, which may be taken more than once, is required. If taken multiple times, the highest score is considered. The deadline for submitting the MCAT score is January 15 of the application cycle.
Applicants are responsible for submitting the score by that deadline. Failure to do so means the application will be incomplete and will be cancelled. The MCAT has sections on biological, chemical, physical, social, psychological and behavioral sciences, and on critical analysis and reasoning skills. Students are encouraged to review the content of the MCAT and plan their studies and preparation accordingly.

For more information on admissions to the Faculty of Medicine, refer to the 2026-27 Graduate Catalogue.

Double Major

Students may, upon approval of the relevant faculty/school, earn one degree with a double major within the same faculty/school provided that both majors share the same degree structure (e.g., both lead to BA, BS, or BE degrees). In such cases, a single degree is issued with both majors indicated. The degree will only be awarded once all requirements for both majors have been fully completed.

To be eligible to apply for a double major, students must:

- Have already completed at least 24 sophomore credits.
- Be in good academic standing with a minimum overall GPA of 2.3.
- Meet the major requirements outlined in the relevant faculty/school section.

Students pursuing a double major must fulfill the requirements of both majors. Additionally, they must complete at least 15 credit hours beyond the requirements of the first major. The general education requirements of one major must be completed.

Students interested in a double major must submit an online petition through the online petition systems within the official deadlines for change of major or transfer applications for the fall or spring terms. The application must be approved by the receiving department and the Admissions Committee of the relevant faculty/school.

Dual Degree

Students may, upon approval of the relevant faculty/school, complete the requirements for two distinct degrees simultaneously, either within the same faculty/school at AUB or across different faculties/schools at AUB, provided that the degree structures are different. Examples include earning a BS in mathematics and BA in economics, or a BS in biology and BA in political studies or history.
In such cases, students will be awarded two degrees upon graduation. If tuition rates differ between the programs, students will be charged the higher tuition rate.

To be eligible to apply for a dual degree, students must:

- Have already completed at least 24 sophomore credits.
- Be in good academic standing with a minimum overall GPA of 2.3.
- Meet the major requirements outlined in the relevant faculty/school section.

Admission to a dual degree is competitive and depends on the availability of places in the faculty/school to which the student is applying.

Students interested in pursuing a dual degree must submit a Dual Degree Petition Form through the online petition system. Students must refer to the university calendar for further information on deadlines.

Students enrolled in a dual degree program must:

- Fulfill all requirements for both degrees.
- Complete at least 30 credit hours beyond the credit requirements of the degree with the higher credit load.
- Satisfy the general education requirements of both degrees.
- Complete at least two additional regular terms to satisfy residency requirements.

Students may withdraw from one of the degrees up to one term before graduation by submitting the appropriate petition through the online petition system.
Dual degrees must be completed concurrently and must have the same graduation date.

Second Degree

Students who have completed, or are completing, their first undergraduate degree and wish to pursue a second bachelor's degree —either in the same or a different faculty/school— may apply as follows:

Current or Recent AUB Graduates

Students may apply for a second degree during the final year of study of their first degree or within two years of completion of the first degree by submitting an application through the Office of Admissions. The second degree application can be submitted in the same faculty/school as the first degree or in another faculty/school.
The second degree applications will be reviewed by the relevant faculty/school following the same internal procedure as those for the change of major (same faculty/school) or transfer applications (another faculty/school). The final admission decision will be communicated by the Office of Admissions.

Graduates from Other Institutions

Students holding a recognized bachelor's degree from an accredited institution of higher education recognized by AUB may apply for a bachelor's degree in a different major from their first degree. These applicants must submit an application to the Office of Admissions.

Requirements for Second Degree Students

Students enrolled in a second degree must meet the university residency requirement of at least two regular terms with at least 30 credits of major requirements and must also meet all faculty/school and departmental requirements for the degree. Non-AUB degree holders may be required to satisfy the AUB general education requirements depending on the university of origin of the first earned degree.

Minor

Students who wish to pursue a minor must formally declare their intent by the "intention to fulfill a minor" online petition through the online petition system.

Students must also submit the "completion of minor" online petition through the online petition system by the deadlines posted on the Office of the Registrar website in order to be awarded the minor.

Most departments across faculties/schools offer a variety of minors. The University's minimum requirements for completing a minor are as follows:

- A minimum of 15 credit hours earned on the basis of regular graded courses (not tutorial or special project type courses); refer to the requirements of each faculty/school.
- At least 9 credit hours of coursework must be completed at AUB.
- Each minor must have at least 6 credits exclusive to it; up to 9 credit hours may be common with the program requirements of the major field(s) of study.
- For students pursuing multiple minors, a maximum of:
  - 6 credits may be shared between minors (for a 15-credit minor)
  - 9 credits may be shared (for an 18-credit minor)
- Minor courses may not be taken on a pass/fail basis at AUB.

Students should refer to the relevant catalogue section for each faculty/school for more information on each minor's requirements.

To graduate with a minor, students must attain a minor GPA of at least 2.3 and meet the faculty/school minor requirements.

The minor will appear on the student's transcript but not on the degree.

Registration

Requirements

Before registering, new students must ensure that they have met all requirements for registration, especially those outlined in the acceptance email and checklist received from the Office of Admissions. Students who do not meet the conditions listed in the checklist cannot register.

The registration guide is available on the Office of the Registrar's website. After attending orientation and confirming that all checklist conditions are met, new students must follow the steps provided in the registration section of their orientation sessions.

Continuing students must follow the registration instructions sent via email by the Office of the Registrar when registration opens.

In both cases, students may refer to the "Registration Instructional Video" available on the Office of the Registrar's webpage.

Students may make final adjustments to their schedules during the change of schedule (Drop and Add) period.
Freshman students will be promoted to their sophomore year only after completing all freshman courses and obtaining the Lebanese Baccalaureate II Equivalence from the Ministry of Education and Higher Education.
Freshmen who lack up to four credits to complete the Freshman Program may register these four credits during a third regular term along with sophomore-level courses. Failure in these freshman credits requires repeating them with an approved underload for these credits only during the following term.

Students may not register for any course unless all prerequisites have been satisfied.

Cross-Registration

Students Enrolled at AUB Taking Courses at Other Universities in Lebanon

AUB students may be allowed to cross-register for a course at another recognized academic institution if all the following conditions are met:

- The course is a program requirement at AUB.
- The course is not offered at AUB during the graduation term.
- The course at the other institution is equivalent to a course offered at AUB. The number and title of each of the two equivalent courses must be clearly indicated.
- Students complete the cross-registration form, obtain the approval from the chairperson, and submit an online petition.

- The Office of the Registrar authorizes the cross-registration. Students then submit this authorization to the concerned institution and secure their approval.

Registration for the course is done manually at the Office of the Registrar upon presenting the signed form. To transfer credits, students must earn a grade of C+ or higher (or its equivalent) in the cross-registered course. For graduating students, an official grade must be received by AUB two weeks before the senate vote; otherwise, graduation will be postponed to the following term.

Current AUB students may not otherwise take any courses at another university in Lebanon and transfer these credits to AUB.

Students Enrolled at Other Universities Taking Courses at AUB

Students enrolled at recognized academic institutions in Lebanon who wish to cross-register for courses at AUB must complete the following steps:

- Obtain written permission from their home institution specifying the course(s) they are allowed to take at AUB.
- Obtain permission from the chairperson of the relevant AUB department offering the desired course(s).
- Submit both permissions to the AUB Office of the Registrar.
- Settle all required fees at AUB upon registration by the Office of the Registrar.

Withdrawal from Courses

Full-time students can withdraw from one or more courses up to the withdrawal deadline specified in the university calendar, provided they maintain a minimum load of 12 credits per regular term after withdrawal. Students will receive a grade of 'W' for any withdrawn course. Once withdrawn, students will not be reinstated in the course and are not allowed to take the final exam. Instructors are expected to provide at least 40 percent of the overall course assessment before the last day of withdrawal.

Tutorials and Directed Study

Students may register for a single tutorial of up to 3 credits during their final year at AUB.

Study Abroad for Undergraduate Students

AUB undergraduate students may choose to study abroad in their junior year in an approved program of study without losing their status at AUB. They may apply to an established program at a university that has an exchange agreement with AUB, or propose their own study abroad plan at a university of their choice recognized by AUB.

In both cases, students must submit an application and obtain approval from their faculty/school and the Office of International Programs (OIP). More information regarding study abroad options and procedures is available in the Office of International Programs section of this catalogue and at the following link: www.aub.edu.lb/oip/AubAbroad.

AUB students may not otherwise take courses at another university and transfer these credits to AUB.

Courses

Credit Load

Full-time students in good academic standing may register for the following maximum credit loads:

- FHS students: Up to 18 credits per regular term
- Students in other faculties/schools: Up to 17 credits per regular term
- All students:
  - Up to 9 credits during the summer term
- Students who wish to register for more than the maximum allowable credits must submit an overload petition to the appropriate faculty/school committee for consideration. This applies to the following categories: Freshman students intending to pursue pre-medicine or engineering, who have a GPA of at least 3.3 in the first term, may take an additional course in the second term.
- Junior and senior students in faculties/schools (except in FHS) who have completed their English communication skills requirements at the level required by their major departments may register for a maximum of 18 credits per term.
- Other students on a case-by-case basis.
- Students on second consecutive probation, third non-consecutive probation, or strict probation (see probation).
- Students who choose to overload must still meet the minimum residency requirement.

If full-time students wish or are required to reduce their course load to fewer than 12 credits, they must submit an underload petition on the online petition system to the appropriate faculty/school committee for consideration.

Repeating Courses

No course may be taken more than three times including withdrawals from the course. When a course is repeated, the highest grade earned is used for calculating the cumulative GPA. However, all course grades remain on the student's permanent record and are included in the calculation of academic standing and honors.

Students are not allowed to repeat a course in which they have an incomplete grade. If they do, the course will be dropped.

If a transferred course is repeated at AUB, the credits and grade earned at AUB will prevail.

Repeat rules apply only to courses taken at AUB and AUBM.

Attendance

Classes and Laboratories

- Students are expected to attend all classes, laboratories, and required fieldwork. Students are responsible for all course material and for any announcements made during these sessions.
- Students who miss more than one-fifth of the sessions of any course prior to the withdrawal deadline may be withdrawn from the course by the instructor.
- Students who withdraw or are withdrawn from a course due to excessive absence will receive a grade of "W."
- An instructor who withdraws students from the course due to excessive absence must have stated in the syllabus that attendance would be taken.

- Students who do not withdraw or cannot be withdrawn for excessive absence, will receive a grade of F.
- Students may not withdraw from a course if doing so reduces their registration below 12 credits in a regular term, unless they have an approved underload petition through the online petition system.

Examinations, Quizzes, and Class Assignments

Students who miss a scheduled examination (including midterms, quizzes, or other class assignments) must present an excuse considered valid by the course instructor within 72 hours of the missed quiz or exam. Make-up exams, quizzes, and class assignments will be administered according to the course syllabus and must be completed before the final grade of the course is issued at the end of the term.
Only medical reports and/or professional opinions issued by an AUB Medical Center (AUBMC) doctor or by the University Health Services are accepted.
If there is any doubt about the validity of the excuse presented by the student, the matter must be referred to the appropriate faculty/school committee. Instructors must also ensure that no exam conflicts with a regularly scheduled course.

Residency Requirements

Students who transfer to AUB must earn at least their final 45 credits over a minimum three terms in residence at AUB (approved study abroad or exchange is counted within residency). Students transferring between AUB faculties/schools must also meet specific residency requirements as determined by their new faculty or school.
AUB students in good academic standing who did not transfer to AUB from another university and wish to study abroad may spend up to one year and earn up to 30 credits at another university. However, AUB students must spend their last term in residence at AUB.
In case of change of major, refer to faculty/school section for residency requirements.

The MEHE requires the following to be met for regular students:

- A minimum residency of six regular terms at AUB for three-year bachelor's programs, 8 terms for four-year bachelor's programs, and 9.5 terms for bachelor's programs in MSFEA.
- Students admitted as freshmen must complete two additional terms to meet the residency requirement.
- Two summer terms may count as one regular term only once, except for engineering disciplines where this may be done twice.
- A maximum residency allowed is two years (four regular terms) beyond the program's residency requirement. Students who need to exceed the limit must submit a "general" petition in the online petition system.

Grades

Grading System

For new students registered at the university starting fall term 2019-20, AUB uses a 4.3 letter grade system according to the following table:

The GPA is capped at 4.0

Course Letter	Grade Quality Points
A+	4.3
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	1.7
D+	1.3
D	1.0
F	0.0
I	Incomplete
P	Pass
PR	In Progress
W	Withdraw
NP	No Pass

GPA calculation:

GPAs calculated using letter grades are weighted. This means that the letter grade you receive for a course is weighted by the course's credit value. For example, if you receive a B+ in a course that is a three credit-hour course, your B+ is equivalent to a quality point value of 3.3, and this 3.3 is multiplied by three credit hours for a total of 9.9. If you take a four credit-hour course at the same time, and earn an A-, this A- is equivalent to 3.7 quality points, and when multiplied by four credit hours results in a total of 14.8. For simplicity's sake, let us say that these were the only courses you took in this particular term, so your GPA would thus be (9.9 + 14.8) / 7 or 3.53. Had your A- course been a three-credit course, the calculation would have been (9.9 + 11.1) / 6 or 3.50. The weighting of the course for which you earned an A enhances your GPA in the first example. At AUB, GPAs are capped at 4.0.

Calculation of GPA in Tabular form:

	Grade	Quality Points	Credits	Total Quality Points	GPA
Course 1	B+	3.3	3	9.9	
Course 2	A-	3.7	4	14.8	
			7 (a)	24.7 (b)	3.53 (b/a)

For students registered at the university prior to fall term 2019–20, AUB uses a numeric system with an Equivalent Grade Point Average according to the following table:

Cumulative Average	GPA	Cumulative Average	GPA	Cumulative Average	GPA	Cumulative Average	GPA
<60	0	67	1.86	75	2.73	83	3.46
60	1	68	1.98	76	2.82	84	3.54
61	1.13	69	2.09	77	2.92	85	3.63
62	1.26	70	2.2	78	3.02	86	3.7
63	1.38	71	2.31	79	3.11	87	3.78
64	1.5	72	2.42	80	3.2	88	3.86
65	1.63	73	2.52	81	3.29	89	3.93
66	1.74	74	2.62	82	3.38	>=90	4

I	Incomplete
P	Pass (Normally Used for Theses and Projects)
PR	In Progress
W	Withdraw
F	Fail

Grade Submission

All faculty members must submit their final course grades no later than four calendar days after the final examination.

Change of Grade Policy

Once grades are posted on the AUB Student Information System (AUBsis), a change of grade is not allowed unless a demonstrable mistake occurred in grading the final examination or in calculating the final grade.

In such cases, the instructor must initiate a Change of Grade Petition in the online petition system, providing supporting evidence of the mistake. This petition must be approved by the chairperson of the department offering the course and the appropriate faculty/school committee.

No change of grade will be accepted and processed after one regular term has passed.

Students have the right to access their corrected exams, including final exams, without penalty, and may request a review of their exams if they believe mistakes have been made in calculating grades or in corrections. This request to review the course grade must be made to the course instructor within one week of the grade being posted. If the review results in a change of course grade, the instructor must submit the Change of Grade Petition.

If a dispute regarding the change of a grade continues, students must first discuss the issue with department chair. If students are still not satisfied, they may submit a petition to the faculty/school Academic and Curriculum Committee requesting further consideration.

Incomplete Grades

Students who receive an incomplete grade for a course must complete the remaining course work within maximum one month from the start of the next regular term. Students must submit a petition within 72 hours along with evidence of a valid excuse. Medical reports and/or qualified professional opinions issued by an AUBMC doctor or by the University Health Services are considered.

Incomplete coursework is initially reported as “I,” followed by a grade that reflects the student’s performance based on the evaluation criteria outlined in the course syllabus. A grade of zero is computed for all missed work. If the coursework is not completed within the specified period, the “I” is removed, and the attached grade becomes final. If the student completes the work, the instructor submits the final grade.

In exceptional cases, a grade of “I” may be assigned by the appropriate faculty/school committee if the incomplete period is extended beyond the normal reporting period, based on an approved petition in the online petition system.

Language of Instruction

English is the language of instruction at the university. Papers (term papers, essays, or exams) that are poorly written may receive a lower grade for the quality of writing alone, regardless of the content.

A student's final grade in a course may be reduced for consistently substandard written or oral expression. In extreme cases, a failing grade may be assigned for poor communication skills alone.

Credit Transfer

For Students Returning from Study Abroad

Upon completion of the Study Abroad Program, students must make sure that the credits earned are transferred toward their degree requirements as follows:

- The relevant academic departments at AUB must have pre-approved the courses through the study abroad online petition system.
- Students must achieve a minimum passing grade equivalent to AUB grade of C+ (For OSB, refer to the relevant section for more details).
- Credits earned on study abroad and exchange programs are considered to be transfer credits and will appear as pass/fail on the AUB transcript. These credits are not included in the GPA calculation.
- The host university must provide an official transcript directly to the Office of International Programs.
- The Office of International Programs will forward the official transcript to the Office of the Registrar for credit transfer.
- None of the courses taken abroad may be online but up to 25 percent of them may be hybrid.
- A Certificate of Physical Attendance is required.

For more details, visit the Office of International Programs (OIP) section of the catalogue.

For Students Admitted as Transfer Students from Other Institutions

Upon registering for their first term at AUB, students must ensure that credits earned at other institutions and applicable to their program requirements at AUB are transferred as follows:

- Students must submit a course equivalence petition in the online petition system along with the following documents:
  - The syllabi (including course learning outcomes, if available) for all courses completed at the previous institution.
  - The official transcript of courses issued by the institution.
- Students are strongly encouraged to seek approval of credit transfer within one month of the start of their first term.
- Approval of credit transfer is contingent upon achieving a minimum passing grade equivalent to AUB's grade of C+ (2.3) in each course, as determined by the Undergraduate Curriculum Committee of the relevant faculty/school.
- Credits transferred from other institutions will show as 'Pass' on the AUB transcript and will not be included in the GPA calculation.
- Transferred major credits may not exceed 50 percent of the total major requirements.

Transfer Within the University

Transfer Within the Same Faculty/School – Intra-Faculty Transfer

Students wishing to transfer to a different major within the same faculty/school may do so only after completing at least 24 credits (26 for freshman) within two full terms in their current major. This transfer requires submitting a Change of Major Petition in the online petition system. Refer to the respective faculty/school section for specific requirements.

Transfer from one Faculty/School to Another – Interfaculty Transfer

Students wishing to transfer to a major in a different faculty/school may do so only after completing at least 24 sophomore credits (26 freshman credits) within two full terms in their current major. Students must apply through the transfer dashboard on AUBsis, according to the deadlines specified in the university calendar.

For more information on specific transfer requirements, refer to the relevant program section in the catalogue.

Students who transfer will be required to follow the program requirements outlined in the catalogue effective in the term they start their new major.

Dean's Honor List

To be placed on the Dean's Honor List at the end of a regular term, students must:

- Earn at least 12 credits.
- Pass all courses and achieve a minimum term GPA of 3.7 or be ranked in the top 10 percent of the class with an overall GPA of 3.3.
- Not have been subjected to any disciplinary action within the university during the term.
- Be deemed deserving by the dean to be on the honor list.

Note: No student will be placed on the Dean's Honor List retroactively.

Academic Standing

Academic standing is determined by the calculation of an Evaluation GPA (EGPA). Students are evaluated when the minimum number of credits at the end of their second regular term (i.e., fall or spring) is twenty-four (24) GPA hours and twelve (12) GPA hours in each subsequent regular term. Students are in "Good Standing" when they have been evaluated as having a satisfactory EGPA over those GPA hours. All grades are included in calculation of EGPA including repeated courses.

Academic Probation

Students are placed on academic probation if any of the following conditions are met:

- Their EGPA is less than 2.1 at the end of the second regular term,
- Their EGPA is less than 2.2 at the end of the third or fourth regular term, or
- Their EGPA is less than 2.3 in any subsequent regular term.

If students on probation withdraw (W) the entire term, then that term is counted for continued probation purposes. The term in which the students are considered to be on probation is the term that immediately follows that in which they earned the grades leading to probation.

GPA hours earned during a summer term are counted towards the EGPA of the next regular term. If the number of GPA hours taken in any regular term is less than twelve (12) GPA hours, it will be counted towards the EGPA of the next regular term.

Credit for incomplete courses will be included in the term in during which the incomplete courses were taken. The evaluation for that term will be carried out as soon as the grades for the incomplete courses have been finalized, and it is important that this is done as soon as possible.

For implementation purposes, the probation status of students is represented by two attributes (a, b):

The first attribute (a) represents the student's current academic status as follows:

- 0: Clear status, no longer on probation.
- 1: The student is currently on probation but was not on probation during any preceding regular term.
- 2: The student is currently on probation and was also on probation in last evaluated regular term.

The second attribute (b) represents the probation history of a student, i.e., the total number of times the student has been placed on probation.

Students who are placed on probation are not eligible to receive financial aid.

Students who are placed on second continuous probation (2,2) or third non-continuous probation (1,3 or 2,3) will have their credit load limit reduced to thirteen (13) credits in regular terms and seven (7) credits in summer terms.

Removal of Probation

Probation is removed when the student achieves EGPA of 2.2 or greater in the third or fourth regular term, or EGPA of 2.3 or greater in any subsequent regular term. Probation will be lifted for the term following the one in which this EGPA is achieved. Students should remove their probation within two regular terms.

Dismissal

A student may be dismissed from the university for any of the following reasons:

- If the student's overall GPA is less than 1.0 at the end of the second regular term.
- If the student fails to clear academic probation within two regular terms (i.e., the student's academic status is (2,2) or (2,3)), and has not removed probation.
- If the student is placed on academic probation for a total of four regular terms (students can be dismissed for this reason even if it is their final year at AUB). This applies when the student's academic status is (0,3) or (1,3), and the student is placed on probation again.
- If the student is deemed undeserving by the faculty/school to continue due to professional or ethical reasons.

Refer to the Admissions section on readmission if the student has been away from the university for more than two years.

Readmission After Dismissal

Students are generally considered for readmission only if, after spending one year at another recognized institution of higher education and successfully completing a minimum of 24 credits, they can present a satisfactory academic record and recommendation through a Reactivation Petition in the online petition system. If readmitted, these students will be placed on strict probation. The transfer of credits will be considered following departmental evaluation of the student's coursework.

Students who have left the university while on probation will remain on probation for one term. They will be required to take 12 or 13 credits only in regular terms and 7 credits only in summer term. If probation is not removed by the end of that term, the student will be dropped from the university.

Reactivation

Students in good standing who voluntarily withdrew shall be granted reactivation to their former faculty/school, provided that no more than four regular terms have passed since the end of the term of withdrawal and the start of the term for which readmission is sought. The Reactivation Petition is available through the online petition system and must be submitted to the concerned faculty/school dean's office at least one month prior to the beginning of the term or summer term to which readmission is sought. Once submitted, readmission will be automatic.

Academic Dishonesty

Students who fail to properly credit ideas or materials drawn from another person's work commit plagiarism. Putting your name on a piece of work—any part of which is not your own— constitutes plagiarism unless that section is clearly marked, and the work from which you have borrowed is fully identified. Plagiarism, falsification of data, resubmitting the same material for different courses, cheating, and other forms of academic dishonesty are serious violations of academic integrity and may result in dismissal.
Students are expected to be familiar with the various forms of academic dishonesty as explained in the Student Code of Conduct (https://aub.policytech.eu/dotNet/documents/?docid=147&public=true) and in the University Policy and Procedures concerning Research Misconduct (https://aub.policytech.eu/dotNet/documents/?docid=159&app=pt&source=browse).

Disclosure of Student Records

Information about disclosure of student records and notification of rights under Family Educational Rights and Privacy Act (FERPA) can be found on the following link:
http://www.aub.edu.lb/Registrar/Documents/ferpa.pdf

Graduation

Requirements

Students are strongly advised to consult with their advisers when preparing their registration schedules to ensure all graduation requirements are met. Failure to do so may result in an additional term or more at AUB to complete graduation requirements.

Students are considered candidates for graduation after fulfilling the following criteria:

- Applied for graduation online.
- Completed all the program requirements.
- Achieved the minimum major GPA as specified by the relevant faculty/school.
- Met the AUB residency requirements.
- Attained an overall minimum GPA of 2.3.

Students who complete graduation requirements will graduate at the end of fall (February), spring (June) and summer (October) terms.

Graduation with Distinction and High Distinction

For students graduating with distinction and high distinction, the university calculates an honors cumulative GPA (HCGPA) based on the final academic terms during which 60 or more GPA credits have been completed at AUB. Note that no partial counting of GPA hours is allowed. The HCGPA does not appear on the transcript and is calculated solely for the purpose of awarding distinction or high distinction.

To graduate with distinction, students must:

- Have an HCGPA of 3.7 or higher.
- Be recommended by their department for distinction.
- Not have been subjected to disciplinary action during the graduation term.

To graduate with high distinction, students must:

- Have HCGPA of 4.0 or higher.
- Be recommended by their department for high distinction.
- Not have been subjected to disciplinary action during the graduation term.

For purposes of graduation with distinction or high distinction, when students repeat a course, all the attempted courses taken within the last 60 or more GPA hours will be used to calculate the HCGPA. For transfer and second degree students, if fewer than 60 credits have been completed at AUB, they will not be eligible for graduation with distinction.

Graduation with Distinction and High Distinction for a Double Major

Refer to the previous section.

Graduation with Distinction and High Distinction for a Dual Degree

For each program within a dual degree, the calculation of HCGPA involves considering the minimum last 60 GPA hours that apply separately to fulfill the degree requirements of each program.

Starting with the most recent term and working backward:

1. Every course that satisfies both degree requirements, including General Education courses, is included in the calculation of each program's HCGPA.
2. Courses specifically applied to fulfill the requirements of one of the two programs are exclusively considered for that program in its respective HCGPA.
3. Additional courses taken to meet the minimum 30-credit requirement for earning dual degrees contribute to the calculation of the HCGPAs for both programs.

This process continues until a minimum of 60 credits is achieved for each major, with no partial counting of GPA hours permitted.

For information regarding repeated and transferred courses, refer to the previous section.

Names on Diplomas and Degrees

Names on diplomas and degrees will be spelled exactly as they appear on passports or official identity cards. According to the Lebanese Ministry of Education and Higher Education, the names of Lebanese students should include first name, father's name, and family name.
Names on AUB diplomas and degrees appear in both Arabic and English. If a name on a passport or official identity card does not appear in both languages, then the name that does not appear in one language will be spelled on AUB diplomas and degrees according to the student's personal preference. Once a degree is issued, the name cannot be changed. All AUB degrees issued for the same student must have the same spelling in both English and Arabic.

Commencement Exercises

Commencement exercises are held once per year at the end of the spring term. Students who graduate in spring or in the immediately previous summer and fall terms may participate in the commencement exercises.

Students who lack three credits or fewer for graduation and are registered for them in the summer term are currently eligible to march in the yearly commencement exercises, provided that they apply online and receive approval. The online petition type is "Intention to March in the Commencement Ceremony." Students may only march in the commencement exercises once per degree.

Recognition of AUB Degrees by the Lebanese Ministry of Education and Higher Education (MEHE)

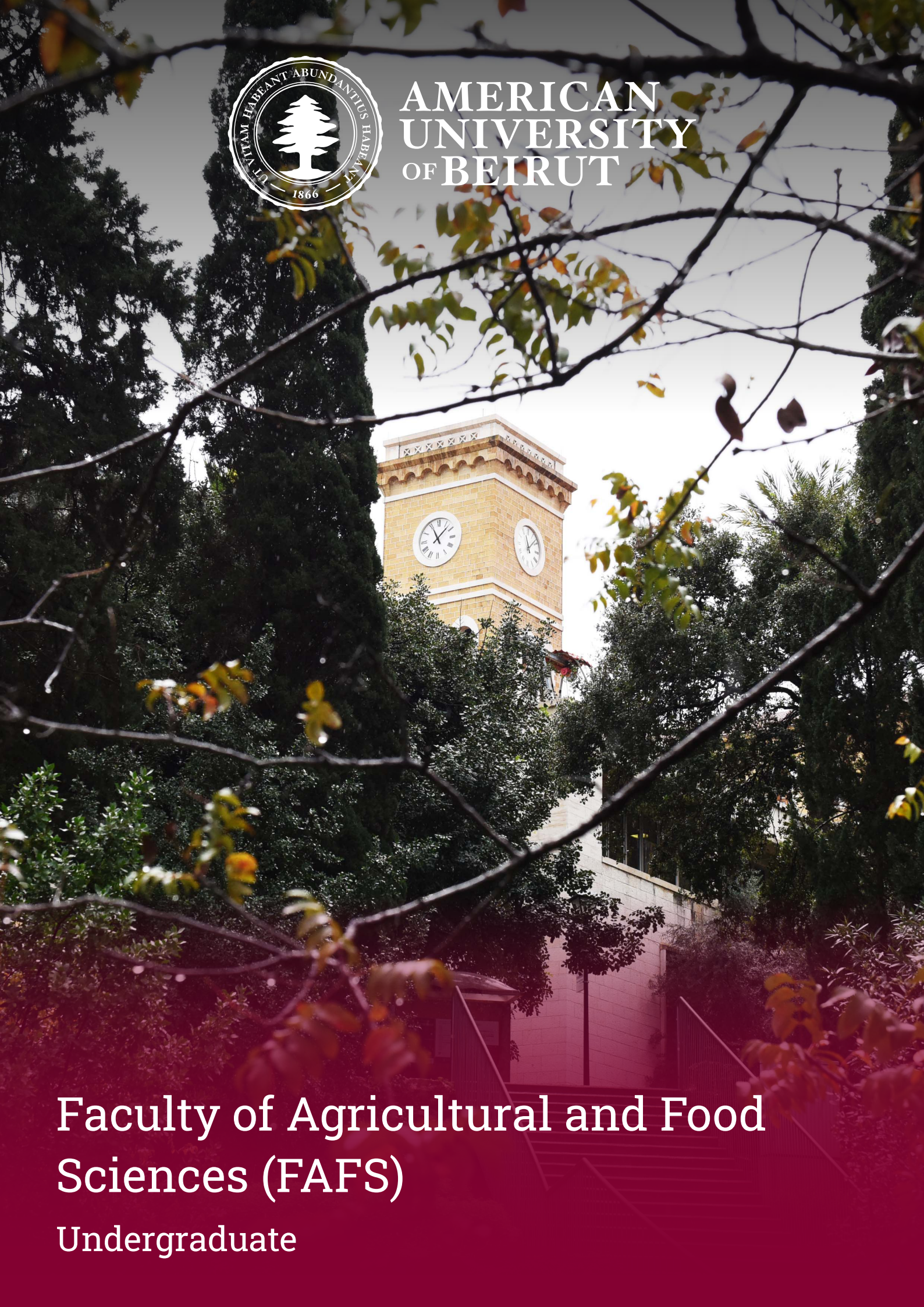
The Lebanese Ministry of Education and Higher Education (MEHE) recognizes degrees awarded by the American University of Beirut, provided students are admitted based on the Lebanese Baccalaureate or its equivalent, as determined by the MEHE.

The MEHE requires a minimum number of credits at or beyond the sophomore level to be completed after the freshman equivalence date. This number is determined by subtracting 30 required freshman or articulated credits from the total required credits.

The MEHE does not yet recognize online degrees/diplomas.

It is the responsibility of students to ensure that the degrees they receive from AUB are duly evaluated by their respective governments.

AUB degrees are registered with the State of New York and will be recognized by it through a process managed by AMIDEAST. For further details, refer to the website of the Office of the Registrar.



AMERICAN UNIVERSITY OF BEIRUT

Faculty of Agricultural and Food Sciences (FAFS)

Undergraduate

Officers of the Faculty

Fadlo R. Khuri	President of the University
Zaher Dawy	Provost
Ammar Olabi	Dean
Lara Nasreddine	Associate Dean for Academic and Student Affairs
Hadi Jaafar	Associate Dean for Research and Innovation
Bradley Jon Tucker	Vice-Provost and Registrar
Antoine Sabbagh	Director of Admissions
Lokman Meho	University Librarian

Faculty Administrative Support

Nadine Abdelkhalek	Career Services Officer
Tharwat Haddad	Student Services Manager
Laila Houri	Financial and Facilities Manager
Caroline Rajeh	Research Support Officer
Alhan Shamseddine	Assistant to the Dean for Operations
Maya Nabhani Zeidan	Director of Continuous Academic Improvement

Coordinators of Undergraduate Programs

Mohamad Ghassan Abiad	Coordinator of Undergraduate Studies Program, Food Science and Management Program
Ali Chalak	Coordinator of Undergraduate Studies Program, Agribusiness Program
Mohamad Talal Farran	Coordinator of Undergraduate Studies

Historical Background

Basic university-level courses in agriculture were offered by the School of Arts and Sciences at AUB as early as 1914. Between the 1930s and 1940s, the university fulfilled its commitment to improving the livelihood of the less fortunate through the creation of the Institute of Rural Life. The institute brought together students and faculty from various university schools and departments to implement improvement projects in rural health, education, and farming. The School of Agriculture was established in 1952, along with the Advancing Research, enabling communities (AREC), a 100-hectare facility located in the Bekaa region 80 km away from the main AUB campus. The school offered a four-year program leading to a BS degree in agriculture and the diploma of ingénieur agricole and offered a one-year Technical Vocational Training (TVT) course, offered to government extension agents from 1956 to 1971. These programs contributed greatly to building the capacity of agricultural scientists and technicians from the Middle East region. A graduate program leading to the MS in agriculture was initiated in 1956.
The importance of food and nutrition and their linkage to agriculture at AUB was recognized in the late 1970s. The school, which had become the Faculty of Agricultural Sciences in 1958, was renamed the Faculty of Agricultural and Food Sciences (FAFS) in 1979, and a three-year BS program in nutrition and dietetics (NTDT) was initiated in 1980. An eleven-month dietary internship program was established at the AUB Medical Center in 1983. The program proved very successful and grew rapidly to become a significant component of FAFS. Global and regional changes in the role and functions of agriculture, nutrition and food created a demand for new courses. FAFS responded by launching several new programs. In 2012, a bachelor of landscape architecture was introduced to replace the BS program in landscape design and eco-management, which started in 2000. The BS program in food sciences and management was launched in October 2002 in response to the rapid expansion of the agri-food industry in Lebanon and the region. Lastly, the importance of entrepreneurship and the need to develop efficient and effective food value chains in the region led to the initiation of the agribusiness program in February 2009.

Mission

The mission of FAFS is to foster sustainable enhancement of the health and well-being of people and nature throughout Lebanon and the region. To achieve its goals, the faculty uses basic and applied research as well as student-centered learning to prepare leaders and agents of change to address issues of local and global relevance at the nexus of human nutrition, food security and the sustainable use of resources.

Vision

FAFS is a reference academic center specialized in issues of relevance to the Middle East related to agriculture, food, nutrition, and the environment for the enhancement of livelihoods, human health, and well-being.

Undergraduate Programs

The Faculty of Agricultural and Food Sciences (FAFS) consists of two departments:

The Department of Agriculture offers two bachelor's degrees:

- Bachelor of Science (BS) in Agriculture and Diploma of Ingénieur Agricole
- Bachelor of Science (BS) in Agribusiness

The Department of Nutrition and Food Sciences offers two bachelor's degrees:

- Bachelor of Science (BS) in Food Science and Management
- Bachelor of Science (BS) in Nutrition and Dietetics

This structure clearly outlines the programs available within each department.

Admissions

AUB admits students from a twelve-year schooling system, starting with elementary 1. Students holding diplomas from a twelve-year secondary school system may gain admission to the Faculty of Agricultural and Food Sciences by completing the freshman program at AUB or its equivalent elsewhere. Those coming from the freshman program should follow the table below:

Major Requirements / Useful Electives
Agribusiness completion of MATH 101, any combination of science courses totaling 9 credits, CHEM 200, and courses in the humanities and a cumulative GPA of at least 2.3 in the freshman year.
Agriculture completion of MATH 101, CHEM 101, CHEM 101L, and BIOL 101, CHEM 200, and courses in the humanities and a cumulative GPA of at least 2.3 in the freshman year.
Food science and management completion of MATH 101, CHEM 101, CHEM 101L, and BIOL 101, CHEM 200, and courses in the humanities and a cumulative GPA of 2.7 in the freshman year.
Nutrition and dietetics completion of MATH 101, CHEM 101, CHEM 101L, and BIOL 101 CHEM 200, SOAN 201, and courses in humanities and a cumulative GPA of at least 3.0 in the freshman year. (Admission is by selection of the most promising eligible applicants)
Landscape architecture Any combination of science courses totaling 9 credits (an elective in each of geology, chemistry, and biology), completion of MATH 101 or MATH 203 with a minimum grade of 70 (C+ or GPA 2.3) and a cumulative average of at least 2.3 in the freshman year.

Students from a twelve-year secondary school system must hold the Lebanese Baccalaureate Part II in general sciences, life sciences, or sociology and economics, or the equivalent if they come from another country. Holders of Baccalaureate Part II in humanities may be considered for admission, provided they take an additional course, MATH 203. To be considered for admission, students applying for transfer from another faculty or university must have a minimum grade point average of GPA: 2.3 for agriculture, agribusiness, and landscape architecture, GPA: 3.0 for nutrition, and GPA: 2.7 for food sciences and management. Admission is by selection of the most promising eligible applicants. For complete and detailed information regarding admission to the university, including recognized certificates, see the Admissions section in this catalogue.

Requirements for Premedical Study

Students entering the Faculty of Agricultural and Food Sciences and who ultimately intend to enter the Faculty of Medicine must complete the premedical requirements as outlined in the Admissions section under the Faculty of Medicine in the Graduate Catalogue.

Transfers

To transfer to the Faculty of Agricultural and Food Sciences from another faculty or university, course credits pertinent to the agricultural curriculum may be transferred at the discretion of the Academic and Curriculum Committee. However, advanced standing can be considered only for students who transfer from an agriculture program of another recognized institution of higher learning.Transfer students from faculties within AUB to FAFS are allowed to transfer a maximum of two terms towards the residency requirements at FAFS based on the rate of equating every 12 credits of transferable courses taken at AUB to one residency term. For purposes of residency requirements, two summer terms are equivalent to one term.
Students wanting to transfer to another faculty must take at least 50 percent of their courses at FAFS, including one FAFS course (2 or 3 cr.) in the corresponding major per term. Students who do not register for at least 50 percent of the courses required by their major in the first term will automatically be given the status of majorless in the second term. Students should transfer after two terms; if they fail to secure acceptance to the desired major by the end of the second term, they will be dropped from the faculty.

Transfer of Courses

Transfer of courses taken at AUB with a minimum grade of (D or 1.0) or taken at another university with a minimum grade of (C+ or 2.3) is transferable to FAFS. Students should submit a written request to the Academic and Curriculum Committee.

Minors

The Faculty of Agricultural and Food Sciences offers four minors:

- A minor in agribusiness under the Department of Agriculture
- A minor in nutrition and dietetics and a minor in food sciences and management, both under the Department of Nutrition and Food Sciences
- An interdisciplinary minor in food systems

Students can find more detailed information about these minors in their respective departments.

Minor in Food Systems

Food security, climate change, and depletion of natural resources are now major concerns at the national and global levels. The vital need for sustainable production techniques able to reconcile economic profitability and environmental preservation is exerting increasing pressure on public policies and agendas. The interdependence of these concerns requires the development of a comprehensive and multidisciplinary approach to food systems.

Goal

This interdisciplinary minor in food systems equips students with the knowledge and skills required to develop a comprehensive view and understanding of the different yet interdependent stages of food systems including food production, processing, marketing, distribution, and consumption. 18 credit hours are required; 3 credits of each of the majors listed below.

List of Courses for the Minor in Food Systems

NFSC 220, NFSC 252, LDEM 211, AVSC 220, AGSC 203, and AGBU 210.

Learning Outcomes

Identify key stages of food-product development.

- Acquire knowledge and practical skills in land preparation, farm irrigation methods, and water measurement techniques.
- Develop an awareness of a safe working environment and monitor sustainable practices in livestock and field crop production.
- Determine the usefulness and limitations of various techniques in food production and processing practices and assess their impact on human health.
- Understand concepts of environmental horticulture and their role in promoting nature conservation.
- Develop marketing and distribution strategies to promote food products.

For more information regarding minors, refer to the General University Academic Information section of the catalogue.

Department of Agriculture (AGRI)

Chairperson	Jaafar, Hadi
Professor Emeritus	Kawar, Nasri
Professors	Abou Jawdah, Yusuf; Chalak, Ali; Farran, Mohamad Talal; Haidar, Mustapha; Hamadeh, Shady; Jaafar, Hadi
Adjunct Professor	Mohtar, Rabi
Adjunct Associate Professor	Chaaban, Jad
Associate Professor	El Kayal, Walid
Lecturers	Jaber, Lina; Doughan, Youssef
Instructor	Sobh, Hana

The Department of Agriculture offers a multidisciplinary program with the objective of training students in the various theoretical and practical aspects of agricultural sciences and agribusiness. Department graduates are prepared to successfully contribute to the agricultural research, business, and education programs in the region.

The agriculture (AGRI) program prepares students to become:

1. Agricultural engineers and professionals with central positions, who create sustainable and ethical solutions and enhance knowledge in various sub-disciplines of agriculture in local, regional, and global practices.
2. Graduates who attend and complete advanced degrees at top universities worldwide.
3. Leaders and innovators in their profession and serving their community.

Students will be trained to address current agricultural issues at the regional and global levels using their scientific knowledge to improve production and protect the environment. The department provides practical and up-to-date knowledge in plant production, plant health management, animal production and health, and land and water conservation. The department also trains students to become skilled farm operators and managers who are innovative and responsive to local and regional needs and who are capable of adapting to market changes and rising production costs.

The department offers two concentrations. A concentration requires a total of 9 credits. Students in their final year may select 9 credits from the lists, which include courses in agricultural sciences and animal and veterinary sciences. Students who do not wish to do a concentration will be considered to be following the broader agriculture sequence (receive a bachelor of science in agriculture and diploma of ingénieur agricole with no concentration).

Undergraduate courses are offered in the areas of crop systems, agro-chemicals, farm power and alternative energy, plant health, organic and intensive agriculture, water technologies, conservation agriculture, soils, GIS in agriculture, agricultural economics, and rural development. In addition, the program covers animal agriculture including nutrition, genetics and physiology, management, and health. Introductory courses in these subjects are offered to agriculture students within the framework of a core curriculum. Specialized and advanced courses are also offered as electives to undergraduates.

The agribusiness (AGBU) program combines the study of management with agricultural sciences in order to provide students with an understanding of the economic and business principles that underlie management tools and their application to agricultural and related businesses. The educational objectives of the AGBU program are to prepare students to become entrepreneurs, business leaders, skilled farm operators and future policy advisers who are well-grounded in the fields of agriculture and food production and who are capable of communicating and using their skills in order to improve their livelihood and that of their community.

Undergraduate courses are offered in the areas of agriculture, business management and accounting, marketing, agricultural economics, entrepreneurship, and rural development. Specialized and advanced courses are also offered as electives to undergraduates.

BS in Agriculture and the Diploma of Ingénieur Agricole

The BS in agriculture and the diploma of ingenieur agricole is a four-year multidisciplinary program with the objective of producing graduates who become:

1. Agricultural engineers and professionals with central positions, who create sustainable and ethical solutions and enhance knowledge in various sub-disciplines of agriculture in local, regional, and global practices.
2. Graduates who attend and complete advanced degrees at top universities worldwide.
3. Leaders and innovators in their profession and serving their community.

The program trains students in the various theoretical and practical aspects of agricultural sciences. It prepares students to address current agricultural issues at the regional and global levels. It prepares students to address current agricultural issues at the regional and global levels using their scientific knowledge to improve production and protect the environment. Specifically, the program aims to develop students' understanding of the principles and practices of sustainable agriculture and its role in food production, environmental conservation, and community development. Students will build the necessary skills to design, implement, and evaluate agricultural systems and technologies that are technically and scientifically effective, but also economically, socially, and environmentally sustainable. Through critical thinking and problem-solving, students will analyze and address the complex challenges facing agriculture and food systems, against a backdrop of mounting climate change and food security vulnerabilities. Additionally, students will gain an understanding of the political, economic, and social factors that shape agricultural policies and practices and be able to advocate for sustainable and climate-smart solutions. The program emphasizes the importance of hands-on experience through internships, research projects, or other field-based learning opportunities, and the use of technology to improve the performance of agriculture and food systems. Students will gain an understanding of the relationship between agriculture and the environment, human health, and economic development. In addition, the program enhances the ability of its graduates to manage farming operations and agricultural businesses.

Graduation Requirements

To be eligible for graduation with the degree of BS in agriculture (AGRI), and the diploma of ingénieur agricole, students must:

- Complete a minimum of 128 term credit hours (AGRI).
- Complete a minimum of eight terms of residency (AGRI).
- Achieve an overall minimum grade average of C+ (GPA 2.3).
- Be approved for graduation by the faculty.

Classification and Promotion

For clear promotion from year I to year II, students must complete a minimum of 27 credits. For promotion from year II to year III, students must complete a minimum of 58 credits. For promotion from year III to year IV, students must complete a minimum of 98 credits. All such credits should be from courses specified in the regular program.

Second BS Degree

To obtain a second BS in agriculture and the diploma of ingénieur agricole, non-FAFS students must complete:

- All AGRL III and AGRL IV courses, including all FAFS electives and Cultures and Histories courses. Applicants who have a BS degree in biology, chemistry, or environmental health do not need to take any additional prerequisite courses.
- At least five terms of residency at FAFS.

Holders of BS degrees from other majors will be required to complete additional prerequisite courses as recommended by the Admissions Committee and approved by the Academic and Curriculum Committee for holders of BS degrees other than the above-mentioned majors.

To obtain a second BS in agriculture and the diploma of ingénieur agricole, agribusiness students must complete:

- A minimum of 53 credit hours.
- A minimum residency period of two terms and the following course requirements.

List of Required Courses for Second BS Agribusiness Students

Term	Credit hours	Courses
Fall	15	AGSC 220 (Principles of Plant Physiology), AGSC 230 (Crop Systems), AGSC 233 (Plant Health I), AVSC 243 (Genetics and Biotechnology), AVSC 275 (Anatomy and Physiology of Farm Animals)

Spring AREC	16	AGSC 222 (Farm Practices,) AVSC 223 (Livestock Systems), AGSC 244 (Agricultural Water Technologies), AGSC 245 (Plant Health II), AGSC 246 (Intensive Agriculture), AGSC 250 (Organic Farming)
Summer AREC	7	AGSC 223 (Agricultural Project and Entrepreneurship), AGSC 235 (Agricultural Extension in Development), AGSC 247 (Farm Power and Alternative Energy)
Fall	15	AGSC 234 (Chemicals in Agriculture), AGSC 249 (GIS for Agriculture), AGSC 265 (Soil Fertility), AVSC 271 (Animal Nutrition), one concentration course in AGSC or AVSC
Total	**53**	

To obtain a second BS in agriculture and the diploma of ingénieur agricole, food science and management students must complete:

- A minimum of 53 credit hours.
- A minimum residency period of two terms and the following course requirements.

List of Required Courses for Second BS Food science and Management Students

Term	Credit hours	Courses
Fall	15	AGSC 207 (Land and Water Resources), AGSC 220 (Principles of Plant Physiology), AGSC 230 (Crop Systems), AGSC 233 (Plant Health I), AVSC 275 (Anatomy and Physiology of Farm Animals)
Spring AREC	16	AGSC 222 (Farm Practices,) AVSC 223 (Livestock Systems), AGSC 244 (Agricultural Water Technologies), AGSC 245 (Plant Health II), AGSC 246 (Intensive Agriculture), AGSC 250 (Organic Farming)
Summer AREC	7	AGSC 223 (Agricultural Project and Entrepreneurship), AGSC 235 (Agricultural Extension in Development), AGSC 247 (Farm Power and Alternative Energy)
Fall	15	AGSC 234 (Chemicals in Agriculture), AGSC 249 (GIS for Agriculture), AGSC 265 (Soil Fertility), AVSC 271 (Animal Nutrition), one concentration course in AGSC or AVSC
Total	**53**	

Eligibility for the Regular AREC Program

To be eligible to enroll in the regular program at AREC during the third year of agriculture, students must:

- Complete a minimum of 58 credits by the end of the first term of Agriculture III with a cumulative GPA of 2.3 or higher and must not have accumulated more than 12 credits of failed and/or missed courses (of which no more than 6 credits are failed courses) specified in the regular program.
- Be approved for such action by the Academic and Curriculum Committee.

Elective Courses

Candidates for the degree of BS in agriculture must complete 21 credits of elective courses: 9 credits of concentration courses in FAFS, 6 credits in the Cultures and Histories, 3 credits in Human Values, and 3 credits in Societies and Individuals.

Curriculum for the BS Degree in Agriculture and Diploma of Ingénieur Agricole

A minimum of 128 credits is required for graduation.

Year I

First Term		Credits
AGSC 205	The Food Odyssey (Cultures and Histories)	3
BIOL 200	Diversity of Life (Understanding the World)	4
CHEM 208	Brief Survey of Organic Chemistry	3
ENGL 203	Academic English	3
CMPS 209	Computers and Programming for the Sciences	3
		Total 16

Second Term		Credits
ARAB	Understanding Communication - Arabic	3
NFSC 261	Introductory Biochemistry	3
AGSC 206	Agriculture and the Environment	3

MATH 204 or 201	Mathematics for Social Sciences II (Quantitative Reasoning)	3
ENGL 204	Advanced Academic English	3
		Total 15

Year II

First Term		**Credits**
AGSC 212	Microeconomic Theory of Food and Farming (Societies and Individuals)	3
AGSC 207	Land and Water Resources	3
AVSC 275	Anatomy and Physiology of Farm Animals	3
AVSC 243	Genetics and Biotechnology	3
AGSC 220	Principles of Plant Physiology	3
		Total 15

Second Term		**Credits**
STAT 210/ NFSC 210	Elementary Statistics for the Sciences/ Statistics in Nutrition and Food Sciences	3
AVSC 224	Agricultural Microbiology	3
AGBU 213	Legal and Policy Aspects of the Agriculture Sector	3
AGSC 225	Rural Community Development	3
	Cultures and Histories Elective (History of Ideas)	3
		Total 15

Year III

First Term		Credits
AGSC 230	Crop Systems	3
AGSC 233	Plant Health I	3
AGSC 234	Chemicals in Agriculture	3
AGSC 254	Python and AI in Agriculture	3
AGBU 240	Career Planning Workshop for Agribusiness	0
Human Values Elective		3
		Total 15

Second Term (AREC)		Credits
AGSC 222	Farm Practices	1
AGSC 244	Agricultural Water Technologies	3
AGSC 245	Plant Health II	3
AGSC/AVSC 250	Organic Farming	3
AVSC 223	Livestock Systems	3
AGSC 246	Intensive Agriculture	3
AGBU 256	Summer Internship	1
		Total 17

Summer Term (AREC)		Credits
AGSC 223	Agricultural Project and Entrepreneurship	2
AGSC 247	Farm Power and Alternative Energy	3
AGSC 235	Agricultural Extension in Development	2
		Total 7

Year IV

First Term		Credits
AGSC 249	GIS for Agriculture	3
AGSC 257	Emerging Issues in Agriculture: Networking with the Private Sector	1
AVSC 271	Animal Nutrition	3
AGSC 265	Soil Fertility	3
AGSC 298A	Capstone Course: From Seed to Table	0
AGSC/AVSC	Concentration Courses Sciences	6
		Total 16

Second Term		Credits
AGSC/AVSC	Concentration Courses Sciences	3
AGSC 298B	Capstone Course: From Seed to Table	3
Cultures and Histories Elective		3
Societies and Individuals Elective		3
		Total 12

Course Descriptions

Core Courses

AGSC 205 The Food Odyssey 3.0; 3 cr.
The course will take the students through the journey of food systems evolution from pre-historic times to the present day and a glimpse into the future. Students who receive credit for AGSC 205 cannot receive credit for AGSC 105.

AGSC 206 Agriculture and the Environment 3.0; 3 cr.
This course will introduce students to the subject of the impact of agricultural processes on the environment. It will discuss nutrient cycling and the various agricultural activities that lead to losses of nutrients and agricultural pollutants to the environment. The course will cover agricultural activities that contribute to climate change, buffer zones between agriculture and its environment, and mitigation strategies.

AGSC 207 Land and Water Resources 2.3; 3 cr.
Global soil and water resources and their current rates of degradation. The main processes of degradation (erosion, loss of organic matter, salinization, pollution) and their causes; consequences of degradation and conservation of resources through improved land use practices. Causes, influences and mitigation measures; water use and supply management for sustainable agriculture.

AGSC 212 Microeconomic Theory of Food and Farming 3.0; 3 cr.
The course introduces economic principles which are then used to explain the production of goods and services, household behavior, economic equilibrium, and the welfare consequences of alternative exchange mechanisms. Special applications will be given to decision-making and the allocation of resources for the agricultural firm, consumer behavior and demand for agricultural and food products. Students cannot receive credit for both AGSC 212 and ECON 211; the two courses will be treated as equivalent.

AGSC 220 Principles of Plant Physiology 2.3; 3 cr.
The course is an introduction to environmental and physiological factors affecting crop growth and development. Prerequisite: BIOL 200. Students cannot receive credit for both AGSC 220 and BIOL 270; the two courses will be treated as equivalent.

AGSC 222 Farm Practices 0.6; 1 cr.
The course exposes students to practical experience in operational activities and management decisions essential in modern agriculture. Prerequisites: AGSC III standing and eligibility for enrollment in the regular program at AREC.

AGSC 223 Agricultural Project and Entrepreneurship 0.6; 2 cr.
The course exposes students to practical experience in operational activities and management decisions essential in modern agriculture. Prerequisites: AGSC III standing and eligibility for enrollment in the regular program at AREC.

AGSC 225 Rural Community Development 3.0; 3 cr.
Students will gain an introduction to the concepts and models of community development. They will be able to identify the consequences of development strategies for social, economic, and environmental well-being, focusing on the interrelationships of these aspects of development. Students will be introduced to strategies to identify capacity and resources available in communities and those that need to be enhanced.

AGSC 230 Crop Systems 3.0; 3 cr.
This course aims to provide students with an understanding of the scientific basis of crop production. These include broad-area agronomy, cropping, and horticulture. In this course, students will gain an understanding of the basic physiological controls on crop yield.

AGSC 233 Plant Health I 2.3; 3 cr.
Students will be introduced to major plant pests covering viruses, bacteria, fungi, phytoplasma, nematodes, weeds, and insects and their management.

AGSC 234 Chemicals in Agriculture 3.0; 3 cr.
In this course, you will review some of the old pesticides that were prohibited and focus on novel pesticides that are more environmentally friendly. The development of pesticides, their chemical composition, toxicity, formulation, mode of action, agricultural and urban uses, safe handling, international laws, metabolism, and fate in the environment will be covered. While this course will focus on pesticides used in agriculture, it will also cover major pesticides used in public health.

AGSC 235 Agricultural Extension in Development 2.0; 2 cr.
The course involves a comparative study of developmental philosophy, objectives, and adaptation to developing countries; it examines principles and methods of extension and adult teaching. Prerequisite: AGSC 225.

AGSC 244 Agricultural Water Technologies 2.3; 3 cr.
This course deals with the practice of irrigation as a green technology with promising effects. Emphasis is given on smart irrigation systems from soil moisture measurement and monitoring to controllers and automated irrigation techniques based on weather sensing. Methods to calculate water requirements and determining application rates and irrigation schedules will be taught. Innovations in drip, sprinkler, and surface irrigation practices will be stressed. Prerequisites: AGSC III standing and eligibility for enrollment in the regular program at AREC.

AGSC 245 Plant Health II 2.3; 3 cr.
Students will be introduced to major plant pests covering viruses, bacteria, fungi, phytoplasma, nematodes, weeds and insects and their management. Prerequisite: AGSC 233.

AGSC 246 Intensive Agriculture 2.3; 3 cr.
This course introduces the students to the bases of intensive plant and animal production in terms of resource use, mechanization, technology, management, and environmental impact. Prerequisites: AGSC III standing and eligibility for enrollment in the regular program at AREC.

AGSC 247 Farm Power and Alternative Energy 2.3; 3 cr.
The course focuses on the study of internal combustion engines, power trains, and safe operation of tractors. The course explores the relationships between renewable energy and agriculture with an emphasis on biofuels, wind energy and hydropower. Prerequisites: AGSC III standing and eligibility for enrollment in the regular program at AREC.

AGSC 249 GIS for Agriculture 2.3; 3 cr.
Basic introduction to geographical information systems with emphasis on applications to agriculture; GIS data types, editing GIS data, spatial data analysis, and GPS collection; basic concepts and techniques of map analysis and the way these are used in geographical information systems in general and desktop GIS in particular. The major areas of practical application of GIS in agriculture; data and principles of sampling and modeling; computer skills for GIS software.

AGSC/AVSC 250 Organic Farming 2.3; 3 cr.
The course explores advances in organic farming and growing systems with an emphasis on farm planning, certification, marketing, information, and organic farming practices. Prerequisites: AGSC III standing and eligibility for enrollment in the regular program at AREC.

AGSC 254 Python and AI in Agriculture 2.3; 3 cr.
This course introduces agriculture students to the fundamentals of Python programming and explores the application of Artificial Intelligence (AI) techniques in agricultural contexts. Emphasis is placed on practical skills, including data analysis, machine learning, and the development of AI-driven solutions to real-world agricultural problems. AI and coding are becoming increasingly important for agriculture students due to the rapid digital transformation in the agricultural sector. AI helps optimize farming practices through data analysis, while coding allows students to customize software to collect and interpret data, ultimately improving yield, reducing waste, and managing resources more efficiently.

AGSC 257 Emerging Issues in Agriculture: Networking with the Private Sector 0.6; 1 cr.
The course is student centered. It relies on developing and delivering four main written /oral scientific communication items: report outline, abstract, report and an oral presentation. The students select a topic of their choice to work on throughout the term under the supervision of a chosen adviser and the course instructor.

AGSC 265 Soil Fertility 2.3; 3 cr.
The course focuses on the study of behavior of native and applied fertilizer elements in soils in relation to crop production, soil fertility evaluation, fertilizer manufacture, fertilizer application in irrigation systems and economics of fertilizer use. Prerequisite: AGSC 207.

AGSC 298A Capstone Course: From Seed to Table 0.3; 0 cr.
This course offers students an opportunity to demonstrate integrated knowledge of the courses that were provided by the curriculum of the chosen major.

AGSC 298B Capstone Course: From Seed to Table 2.3; 3 cr.
This course offers students an opportunity to demonstrate integrated knowledge of the courses that were provided by the curriculum of the chosen major. Prerequisite: AGSC 298A.

AGBU 213 Legal and Policy Aspects of the Agriculture Sector 3.0; 3 cr.
The main objective of the course is to help Agribusiness students understand the Lebanese and American legal aspects of common agricultural business activities, as well as the formation and function of agri-commercial companies and related ethical principles. Prerequisite: junior standing.

AGBU 240 Career Planning Workshop for Agribusiness 0 cr.
The course is a ten-hour workshop designed to build awareness of changing career patterns and major personal and professional influences that impact future careers. Issues such as preparation for joining the labor market, basic career guidance, understanding career stages, and practicing self-assessment are emphasized. Prerequisite: junior standing.

AGBU 256 Summer Internship 0.6; 1 cr.
Summer Internship.

AVSC 223 Livestock Systems 2.3; 3 cr.
In this course, the students will be presented with the different animal systems. The major characteristics of each will be defined in relation to environmental impact and adaptation to different climates, animal welfare, economics, and productivity. Prerequisites: AGSC III standing and eligibility for enrollment in the regular program at AREC.

AVSC 224 Agricultural Microbiology 2.3; 3 cr.
The course covers basic and applied microbiology. The basic microbiology includes bacteriology, virology, parasitology and immunology, and the applied microbiology includes veterinary, soil, water, and food microbiology.

AVSC/AGSC 243 Genetics and Biotechnology 3.0; 3 cr.
This course is an introduction to the fundamental principles of genetics, molecular biology, and biotechnology. Following a description of cell multiplication and trait inheritance and segregation according to Mendelian genetics, the course will focus on DNA and gene regulation, transcription, translation, gene expression, mutation, and DNA recombination with a brief description of current molecular techniques. The important applications of biotechnology in the field of agriculture will be discussed, including transgenic organisms, marker assisted selection, and transformed microorganisms for genetic improvement. Students cannot receive credit for both AVSC 243 and BIOL 223; the two courses will be treated as equivalent.

AVSC 271 Animal Nutrition 3.0; 3 cr.
Structure and functioning of digestive systems of livestock and poultry; bioenergetics, nutritional deficiencies, and nutrient requirements of farm animals.

AVSC 275 Anatomy and Physiology of Farm Animals 3.0; 3 cr.
The course explores the systematic anatomy and physiology of farm animals.

NFSC 210 Statistics in Nutrition and Food Sciences 2.3; 3 cr.
An introduction to the study of statistics as it applies to nutrition and food sciences. Topics include both descriptive and inferential statistics: samples, population, and types of data; organizing and graphing data; numerical descriptive measures; probability; discrete random variables and their probability distributions; continuous random variables and the normal distribution; point and interval estimation and hypothesis testing; correlation and simple linear regression; Chi-Square tests. Students will learn to use the computer package SPSS for statistical analysis. Students cannot receive credit for NFSC 210, STAT 201, STAT 210, STAT 230, ECON 213 or EDUC 227.

NFSC 261 Introductory Biochemistry 3.0; 3 cr.
The course focuses on the study of the chemistry of biological compounds, their enzymatic degradation, and intermediary metabolism. Prerequisite: CHEM 208.

Concentration Courses

Sustainable Agriculture (Organic/Conservation)

AGSC 241 Farm Management 3.0; 3 cr.
The course focuses on the application of modern principles and techniques of management to the farm sector. Prerequisite: AGSC 212 or ECON 203.

AGSC 251 Vegetable Production 3.0; 3 cr.
The course introduces students in the Agriculture program to scientific and hands-on, practical knowledge of vegetable production. Students will also gain an understanding of the physiological controls on vegetable crop yield under protective and local environments. They will become familiar with the current sources of information available to produce and develop production management skills through the production of vegetables. Practical sessions will guide students in understanding different vegetable crop production techniques used in Lebanon and worldwide.

AGSC 253 Harvest and Post-Harvest Issues and Strategies 3.0; 3 cr.
This course discusses the structure of the agricultural harvesting and marketing system with emphasis on factors determining farm level prices. It also emphasizes how markets coordinate consumer desires and producer costs through marketing channels, the impact of market structure, grades, information, product form and advertising on farm prices, and the international trade impact on producers, consumers, agribusinesses, and the government. Prerequisites: AGSC 203 and AGSC 212.

AGSC 270 Principles of Integrated Farming 3.0; 3 cr.
Introduces the students to modern sustainable farming systems including permaculture landscaping, agroforestry, aquaculture in combination with animal and plant farming, nutrient cycles, crop residue and manure management, grazing systems and multi species interactions, the environmental and economic impact of these systems and their management will be addressed.

AGSC 272 Natural Control of Plant Pests 3.0; 3 cr.
The principles and practices of using natural enemies and antagonists within integrated pest management strategies to manage plant pests (insects, mites, pathogens, and weeds) to reduce crop losses. Pest management of major vegetables, fruit tree crops and cereals will be covered. Prerequisites: AGSC 233 and AGSC 245 or consent of instructor.

AGSC 273 The Energy-Water-Food Nexus 3.0; 3 cr.
Energy, water, and food are linked, where water is the major component of crop production and energy is needed for water supply through pumps and for food distribution. This course aims at exploring the link and explaining the connection between these three components.

AVSC 242 Small Ruminant Production in Arid Regions 3.0; 3 cr.
The course explores breeding, feeding and management of sheep and goats under arid conditions.

Agriculture Technology

AGSC 241 Farm Management 3.0; 3 cr.
The course focuses on the application of modern principles and techniques of management to the farm sector. Prerequisite: AGSC 212 or ECON 203.

AGSC 253 Harvest and Post-Harvest Issues and Strategies 3.0; 3 cr.
This course discusses the structure of the agricultural harvesting and marketing system with emphasis on factors determining farm level prices. It also emphasizes how markets coordinate consumer desires and producer costs through marketing channels, the impact of market structure, grades, information, product form and advertising on farm prices, and the international trade impact on producers, consumers, agribusinesses, and the government. Prerequisites: AGSC 203 and AGSC 212.

AGSC 273 The Energy-Water-Food Nexus 3.0; 3 cr.
Energy, water, and food are linked, where water is the major component of crop production and energy is needed for water supply through pumps and for food distribution. This course aims at exploring the link and explaining the connection between these three components.

AGSC 274 Agricultural Biotechnology 3.0; 3 cr.
This course aims to teach students the modern technology advancements in the field of agriculture, from plant and animal biotechnology to breeding and genetics.

AGSC 283 Precision Farming and Agricultural Technology 3.0; 3 cr.
The course covers essential aspects of precision agriculture concepts, including soil/ landscape and crop spatial variability; new technologies; GIS, DEM, GPS, sensors, special software, remote sensing; geostatistics, sampling, experimental designs; precision integrated crop management; variable rate technologies; data acquisition, processing, and management.

Elective Courses

AGSC 105 History of Food and Food Systems 3.0; 3 cr.
The course will take the students through the journey of food systems evolution from pre-historic times to the present day and a glimpse into the future. Students who receive credit for AGSC 105 cannot receive credit for AGSC 205. Elective.

AGSC 201 Orientation to Agriculture and Food Systems 2.0; 2 cr.
This course provides students with basic introductory knowledge of the various disciplines and related subjects in the Faculty of Agricultural and Food Sciences. It covers the various aspects of agricultural production and development, including natural resources, plant sciences, plant health management, animal production and management, agribusiness, nutrition and food sciences, and landscape design and eco-management.

AGSC 219 Apiculture 2.3; 3 cr.
The course introduces the basics of the honeybee world by exploring the natural history of apiculture, honeybee biogeography and evolution, biology, social structure, natural enemies, hive products and pollination dynamics. It illustrates the ecological aspects of one of nature's most fascinating creatures under the looming environmental degradation and focuses on hands-on beekeeping activities.

AGSC 278 Floriculture 2.3; 3 cr.
This course will explore the different basic cultural and production requirements in the field of floriculture in theory and practice. Also, production methods for different species in the special categories of production, such as flower potted plants and interior plants, cut flowers and bedding plants. A general outlook on soil media, environmental influence, and techniques in propagation, and controlling plant development, will be discussed besides structures and greenhouse management.

AGSC 286 The Fruitful Branches: Grapevine and Olive 3.0; 3 cr.
This course explores facts on grape and olive production and distribution around the world, and particularly in Lebanon, in addition to the art and science of planting, growing, and training these rich crops. The course is a broad-based course covering aspects from history to modern trends, from production to processing, from vine to wine and from olive to olive oil.

AGSC 293 Integrated Plant Health Management for Economic Crops 3.0; 3 cr.
The course focuses on basic concepts of the integrated approach to the proper management of plant diseases and insect pests of economic crops, including components of Plant Health Management (PHM) programs and the feasibility and economics of various management strategies; specific PHM cases on major crops are discussed. Prerequisite: consent of the instructor.

AGSC 294 Applied Plant Protection 2.3; 3 cr.
The course explores observations and study of major insect pests and plant diseases on field and greenhouse crops with emphasis on recognition, identification, and management. Prerequisite: consent of the instructor.

AGSC 299 Special Topics in Agricultural Science 2 cr.
The course is a directed study. Tutorial. Prerequisites: fourth year standing and consent of instructor.

AVSC 230 Animal Health and Diseases 3.0; 3 cr.
The course introduces students of varying backgrounds to principles of Animal Biological and Health Sciences. It presents different selected commensal and pathogenic organisms causing common symptomatic and asymptomatic diseases; signs of health and disease specific to different domestic, marine mammal, fish and wildlife animal species; epidemiology of disease incidence; immunology, immune competence vs. tolerance, and vaccination principles; emerging animal diseases; monitoring disease incidence using surveillance techniques; vector biology; methods used to prevent disease occurrence including principles of management, environmental modification and nutritional support. Free elective.

AVSC 241 Principles of Dairying 2.3; 3 cr.
The course explores management, housing, feeding, breeding, and record-keeping in dairy production.

AVSC 260 Introduction to Laboratory Animal Science and Management 2.3; 3 cr.
This is an introductory course covering the essentials of laboratory animal species biology, behavior, physiology, and genetics; health and diseases; experimental models; facility and staff management within laboratory animal facilities; and regulatory compliance requirements in the US and European countries. Students should have previously taken any combination of two courses in the natural and health sciences and in management to gain prerequisite knowledge. Free elective.

AVSC 276 Animal Physiology Laboratory 0.3; 1 cr.
Pre/corequisite: AVSC 275.

AVSC 277 Animal Breeding 2.0; 2 cr.
The course focuses on the principles of permanent improvement of animal and poultry production. Prerequisite: AVSC 243 or BIOL 223.

AVSC 278 Feeds and Feeding 2.3; 3 cr.
The course focuses on the study of characteristics, conservation, and preparation of feeds; and feeding of various classes of livestock.

AVSC 279 Companion Pet Birds and Animals 3.0; 3 cr.
The course explores breed and stock selection, equipment, stocking densities, routine management, rearing, feeding, behavior and interaction with humans, optimum production, and healthcare of pet birds and pet animals. Free elective.

AVSC 280 Aquarium, Marine and Farming Fish 3.0; 3 cr.
A course that covers the different fishing techniques, fish farming, characteristics of fish, comparison of classes of fish, the setup of fresh water and marine aquariums, and the common diseases of fish. Free elective.

AVSC 281 Production of Novel Avian Species 3.0; 3 cr.
The course explores management practices in the production of economically beneficial avian species other than the domestic chicken (e.g., ratites, turkey, water fowl, and others). Free elective.

AVSC 282 Pet Birds and Animals 3.0; 3 cr.
It is a course that describes the anatomy and physiology of pets belonging to Mammalia, Reptilia, Aves and Osteichthyes. The history, classification, breeds, selection, rearing, feeding, production, and health of sixteen pets will be studied. Prerequisite: BIOL 200.

AVSC 299A Special Topics in Animal Sciences for Agriculture program 2 cr.
The course is a directed study. Tutorial. Prerequisites: fourth year standing and consent of instructor.

BS in Agribusiness

The BS in agribusiness is a three-year cross-disciplinary program designed to provide students with comprehensive knowledge in the decision-making processes of business and the technical aspects of modern agriculture and food systems. Graduates of this program do not receive the diploma of ingénieur agricole.

Graduation Requirements

To be eligible for graduation with the degree of BS in agribusiness (AGBU), students must:

- Complete a minimum of 97 term credit hours for the NTDT program: 97 term credit hours for the FSMT program and 96 term credit hours for the AGBU.
- Complete a minimum of six terms of residency.
- Achieve an overall minimum average grade of C+ (GPA 2.3).
- Be approved for graduation by the faculty.

Classification and Promotion

For clear promotion from year I to year II, students must complete a minimum of 30 credits. For promotion from year II to year III, students must complete a minimum of 60 credits. All such credits should be from courses specified in the regular program.

Second BS Degree

To obtain a second BS in agribusiness, students must complete:

- A minimum of 54 credits while registered in FAFS, including all AGBU II and AGBU III required core courses listed in this catalogue (of which up to 15 credits can be from transferred course credits).
- Additional prerequisite courses as recommended by the Admissions Committee and approved by the Academic and Curriculum Committee.

Minor in Agribusiness

The courses required for a minor in agribusiness are AGBU 210/MKTG 210, AGBU 213, AGBU 229 or AGBU 236, AGBU 239, AGBU 240, AGBU 248/INFO 200, and AGBU 292.

Elective Courses

Candidates for the degree of BS in agribusiness must also complete 9 credits in Cultures and Histories and 3 credits in Human Values.

Curriculum for the BS Degree in Agribusiness

A minimum of 96 credits is required for graduation.

Agribusiness I

First Term		Credits
AGSC 204	Natural Sciences for Agribusiness (Understanding the World)	3
AGBU 211	Introduction to Agricultural Issues and Policies	3
CMPS 209	Computers and Programming for the Sciences (Quantitative Reasoning)	3
ENGL 203	Academic English	3
MATH 204	Mathematics for Social Sciences II (Quantitative Reasoning)	3
		Total 15

Second Term		Credits
ACCT 210	Financial Accounting	3
AGSC 207	Land and Water Resources	3
AGSC 203	Crop Production and Protection	3
ARAB	Understanding Communication - Arabic	3
ENGL 204	Advanced Academic English	3
		Total 15

Agribusiness II

First Term		Credits
ACCT 215	Management Accounting	3
AGSC 212	Microeconomics Theory of Food and Farming (Societies and Individuals)	3
AGBU 239	Agribusiness Communication Skills Workshop	0
NFSC 252	Food Processing	3
NFSC 210	Statistics in Nutrition and Food Sciences	3
Human Values Elective	To be chosen from PHIL 206 or PHIL 209	3
		Total 15

Second Term		Credits
AGBU 210	Marketing in Agribusiness	3
ECON 212	Elementary Macroeconomic Theory (Societies and Individuals)	3
AGSC 253	Harvest and Post-harvest Issues and Strategies	3
AGBU 255	Field Study of the Rural Agro-economy (Community Engaged Learning)	3
AVSC 220	Livestock Production (Understanding the World)	3
		Total 15

Summer Term		Credits
AGBU 229	Entrepreneurship in Agriculture (Theory + Project)	3
AGBU 256	Summer Internship	1
		Total 4

Agribusiness III

First Term		Credits
AGBU 236	New Trends in Agricultural and Food Systems	3
AGBU 240	Career Planning Workshop for Agribusiness	0
FINA 210	Business Finance	3
INFO 200	Foundations of Information Systems	3
AGBU 215	Principles of Agribusiness Enterprise Management	3
AGBU 292A	Agribusiness Final Year Project (capstone course)	0
Cultures and Histories (History of Ideas) Elective		3
		Total 15

Second Term		Credits
AGBU 213	Legal and Policy Aspects of the Agriculture Sector	3
AGBU 248	Operation Management for Agribusiness	3
AGBU 292B	Agribusiness Final Year Project (capstone course)	5
Cultures and Histories Elective		3
Cultures and Histories Elective		3
		Total 17

Course Descriptions

Core Courses

AGBU 210 Marketing in Agribusiness 3.0; 3 cr.
The course is an overview of marketing activities in agro-food industries, including marketing inputs in strategic planning, global marketing, marketing research, analysis of buyer behavior, market segmentation and positioning, and development of the marketing mix elements. Students cannot receive credit for both AGBU 210 and MKTG 210; the two courses will be treated as equivalent. Prerequisite: junior standing.

AGBU 211 Introduction to Agricultural Issues and Policies 3.0; 3 cr.
The course is a survey of global food and agricultural issues. It covers the role of agriculture in economic development, trade in food and agricultural products, global food production, consumption and marketing patterns, economics of technical change and food assistance, and agriculture and the environment.

AGBU 213 Legal and Policy Aspects of the Agriculture Sector 3.0; 3 cr.
The main objective of the course is to help agribusiness students understand the Lebanese and American legal aspects of common agricultural business activities, as well as the formation and function of agri-commercial companies and related ethical principles. Prerequisite: junior standing.

AGBU 215 Principles of Agribusiness Enterprise Management 3.0; 3 cr.
This is the introductory course to management, specifically tailored for agribusinesses and nature-based enterprises. The course provides students with an overview of the management functions and their role in agricultural and natural resource-based organizations and society. It aims to provide students with fundamental managerial knowledge essential for the effective operation of agribusinesses, cooperatives, and nature-based enterprises. Students will develop an understanding of the unique challenges managers face in these sectors, including sustainability, market fluctuations, and regulatory considerations. The course explores the manager's roles in planning, organizing, leading, and controlling agribusiness and nature-based organizations. Students will engage with a guiding framework that supports management decision-making, economic analysis, employee motivation, communication, business growth, and managing teams in the context of food, agriculture, and environmental enterprises. Moreover, the course emphasizes managerial, leadership, analytical, and technical skills necessary for successful management roles in agribusiness and nature-based enterprises.

AGBU 229 Entrepreneurship in Agriculture 3.0; 3 cr.
The course focuses on the study of integration of production, marketing, accounting, finance, agricultural policy, human behavior, and business environment concepts in management of agricultural businesses using the compilation by students of agribusiness plans. Prerequisite: junior standing.

AGBU 236 New Trends in Agricultural and Food Systems 3.0; 3 cr.
The course explores current trends in agricultural production and trade, developments in private sector markets and in public policy, and the concerns related to the effects of agricultural production and trade on the environment, food security and regional development. The course will also address the issue of the challenges to food exporters from developing countries posed by the need to comply with ever-strict standards. Moreover, the course will cover the global market structures of the agricultural products most relevant to the Mediterranean countries and the experience and present thinking about the pros and cons of the spread of genetically modified products, designation of origins, and other food labeling mechanisms. Prerequisite: senior status in agribusiness.

AGBU 239 Agribusiness Communication Skills Workshop 0 cr.
The course is a ten-hour workshop designed to introduce students to the various communication skills needed in a typical work environment. Mastering these skills plays a profound role in shaping and advancing professional careers in all types of industries and work scopes. The workshop introduces specific guidelines for the effective use of a variety of communication skills in the workplace in an interactive manner by simulating the work environment.

AGBU 240 Career Planning Workshop for Agribusiness 0 cr.
The course is a ten-hour workshop designed to build awareness of changing career patterns and major personal and professional influences that impact future careers. Issues such as preparation for joining the labor market, basic career guidance, understanding career stages, and practicing self-assessment are emphasized. Prerequisite: junior standing.

AGBU 248 Operation Management for Agribusiness 3.0; 3 cr.
This course covers the essentials of supply chain management and quantitative techniques needed for the planning and implementation of agribusiness operations. This course includes optimization of production and cost minimization. Students cannot receive credit for both AGBU 248 and DCSN 200; the two courses will be treated as equivalent. Prerequisite: senior standing.

AGBU 255 Field Study of the Rural Agro-Economy 3.0; 3 cr.
Tours of agribusiness enterprises and rural farms in Lebanon are organized with the intent of observing the management and marketing practices used in successful operations of different agribusiness structures. Students will also learn how the agriculture value chain is structured within the rural economy. Prerequisites: AGSC 203 and AGSC 207.

AGBU 256 Summer Internship 0.6; 1 cr.
Summer Internship.

AGBU 292 Agribusiness Final Year Project 5.0; 5 cr.
This is a milestone capstone course for students in Agribusiness that emphasizes the application of concepts, tools and principles including management, finance, marketing, economic theory and quantitative methods to applied agricultural decisions on selected agricultural and agribusiness projects. Through the course, students develop teambuilding as well as written and oral communication skills. Prerequisite: senior standing.

AGSC 203 Crop Production and Protection 2.3; 3 cr.
The course provides an overview of the technologies used in the production of crops. Students will acquire a knowledge and understanding of current crop production systems, the end market requirements for products as well as the quality standards of these products. Students will also learn current techniques in crop protection and yield management.

AGSC 204 Natural Sciences for Agribusiness 3.0; 3 cr.
This course is an introduction to chemistry and biology designed for first-year Agribusiness students. It aims to familiarize students with the basic concepts and theoretical principles of modern chemistry and biology. Students will gain an appreciation of the importance that biology and chemistry play in our natural lives.

AGSC 207 Land and Water Resources 2.3; 3 cr.
Global soil and water resources and their current rates of degradation. The main processes of degradation (erosion, loss of organic matter, salinization, pollution) and their causes; consequences of degradation and conservation of resources through improved land use practices. Causes, influences and mitigation measures; water use and supply management for sustainable agriculture.

AGSC 212 Microeconomic Theory of Food and Farming 3.0; 3 cr.
The course introduces economic principles which are used to explain the production of goods and services, household behavior, economic equilibrium, and the welfare consequences of alternative exchange mechanisms. Special applications will be given to decision-making and the allocation of resources for the agricultural firm, consumer behavior and demand for agricultural and food products.

AGSC 253 Harvest and Post-Harvest Issues and Strategies 3.0; 3 cr.
This course discusses the structure of the agricultural harvesting and marketing system with emphasis on factors determining farm level prices. It also emphasizes how markets coordinate consumer desires and producer costs through marketing channels, the impact of market structure, grades, information, product form and advertising on farm prices, and the international trade impact on producers, consumers, agribusinesses, and the government. Prerequisites: AGSC 203, AGSC 207, and AGSC 212.

AVSC 220 Livestock Production 3.0; 3 cr.
The course is divided into three main sections. The first section introduces the types and breeds of livestock, terminology, methods, management systems, techniques of animal production and consumer impact. The second section introduces students to the modern management practices required for the production of economically beneficial avian species including domestic chickens, turkeys, waterfowls, game birds and others. The third section discusses the nature of economic diseases in domestic animals and avian species and the regulations of the World Trade Organization in the import and export of animals, including rules that prevent the trans-boundary transmission of microbes causing economic diseases.

NFSC 210 Statistics in Nutrition and Food Sciences 2.3; 3 cr.
An introduction to the study of statistics as it applies to nutrition and food sciences. Topics include both descriptive and inferential statistics: samples, population, and types of data; organizing and graphing data; numerical descriptive measures; probability; discrete random variables and their probability distributions; continuous random variables and the normal distribution; point and interval estimation and hypothesis testing; correlation and simple linear regression; Chi-Square tests. Students will learn to use the computer package SPSS for statistical analysis. Students cannot receive credit for NFSC 210, STAT 201, STAT 210, STAT 230, ECON 213 or EDUC 227.

NFSC 252 Introduction to Food Processing 3.0; 3 cr.
Technology and processing of foods; includes different technologies applied to preserve and process food from post-harvest stages to being ready for consumption. Processing methods covered relate to cereals, dairy products, meat, poultry, fats and oils, fermentation, fruits, and vegetables, as well as beverages.

Department of Nutrition and Food Sciences (NFSC)

Chairperson	Kharroubi, Samer (Associate Dean of Student Affairs)
Professors	Abiad, Mohammad; Hwalla, Nahla; Kharroubi, Samer; Nasreddine, Lara; Obeid, Omar; Olabi, Ammar; Toufeili, Imad
Adjunct Associate Professor	Jomaa, Lamis
Assistant Professors	Fares, Elie Jacques; Iskandar, Christelle; Ouaijan, Krystel
Assistant Professor of Practice	Chamieh, Marie Claire
Assistant Research Professor	Habib Mourad, Carla
Instructors	Daroub, Hamza; El Sayed Ahmad, Raeda; Hamzeh, Reem

The mission of the Department of Nutrition and Food Sciences is to produce qualified graduates capable of serving the region in various areas of food science, nutrition, and dietetics. The department participates in offering courses within the Faculty of Agricultural and Food Sciences (FAFS) undergraduate core program and additionally offers junior and senior courses that cover areas of major importance in food science, nutrition, and dietetics. The department offers two three-year programs, one leading to a BS degree in nutrition and dietetics (NTDT) and the other leading to a BS degree in food science and management. Graduates wishing to qualify as licensed dietitians should complete an internship for a minimum of six months in a recognized medical setting.

BS in Food Science and Management

This is a specialized three-year program offered by FAFS to prepare graduates to satisfy the needs of food industries and establishments in the region. Graduates of this program do not receive the diploma of ingénieur agricole.

Graduation Requirements

To be eligible for graduation with the degree of BS in food sciences and management (FSMT), students must:

- Complete a minimum of 97 term credit hours for the FSMT program.
- Complete a minimum of six terms of residency.
- Achieve an overall minimum average grade of C+ (GPA 2.3).
- Be approved for graduation by the faculty.

Classification and Promotion

For clear promotion from year I to year II, students must complete a minimum of 30 credits. For promotion from year II to year III, students must complete a minimum of 63 credits. All such credits should be from courses specified in the regular program.

Second BS Degree

To obtain a second BS in food science and management, students must complete:

- A minimum of 53 credits while registered in FAFS, including all FSMT II and FSMT III required core courses listed in this catalogue (of which up to 15 credits can be from transferred course credits).
- Additional prerequisite courses as recommended by the Admissions Committee and approved by the Academic and Curriculum Committee.
- At least three terms of residency at FAFS.

Minor in Food Science and Management

Students already working on a bachelor's degree outside food science and management (FSMT) and who wish to obtain a minor in FSMT must apply to the relevant minor before taking any course in the requested minor. The Department of Nutrition and Food Sciences evaluates all applicants for a minor and makes recommendations to the Academic and Curriculum Committee (ACC).

Students are eligible to be considered for a minor in food science and management after completing 24 credit hours in their major with a cumulative grade average of B, a GPA of 3.0. Students are required to complete a minimum of 16 credits for the minor. The courses are: NFSC 265, NFSC 278, NFSC 282, NFSC 288, MNGT 215, and MKTG 210. Additional courses may be required from agriculture and nutrition and dietetics students to replace required courses common to the major and minor and/or to fulfill prerequisite courses.

Elective Courses

Candidates for the degrees of BS in food sciences and management must complete a minimum of 9 credits in Cultures and Histories and 3 credits in Human Values. One elective should cover the theme of Social Inequalities.

Curriculum for the BS Degree in Food Science and Management

A minimum of 97 credits are required for graduation.

Food Science and Management I

First Term		Credits
BIOL 200	Diversity of Life	4
CHEM 200	Basic Chemistry and Applications (Understanding the World)	3
CHEM 205	Introductory Chemistry Laboratory	2
ENGL 203	Academic English	3
MATH 204	Mathematics for Social Sciences II (Quantitative Reasoning)	3
		Total 15

Second Term		Credits
CHEM 208	Brief Survey of Organic Chemistry (Understanding the World)	3
CHEM 209	Introductory Organic Laboratory	2
ENGL 204	Advanced Academic English	3
AGSC 212	Microeconomics Theory of Food and Farming (Societies and Individuals)	3
NFSC 221	Basic Nutrition	3
Cultures and Histories (History of Ideas)		3
		Total 17

Food Science and Management II

First Term		Credits
NFSC 210	Statistics in Nutrition and Food Sciences	3
NFSC 291	Elements of Food Engineering	3
NFSC 261	Introductory Biochemistry	3
NFSC 265	Food Chemistry	3
NFSC 267	Food Analysis	2
NFSC 277	Food Microbiology I	3
		Total 17

Second Term		Credits
ACCT 210	Financial Accounting	3
ARAB	Understanding Communication - Arabic	3
CMPS 209	Computers and Programming for the Sciences	3
NFSC 272	Introduction to Food Service and Industries (Community Engaged Learning)	2
NFSC 282	Food Quality Management	3
Human Values Elective		3
		Total 17

Summer Term		Credits
NFSC 280	Summer Training in Food Establishments	1
		Total 1

Food Science and Management III

First Term		Credits
ACCT 215	Management Accounting	3
NFSC 278	Food Microbiology II	3
NFSC 288	Technology of Food Products	3
FINA 210	Business Finance	3
NFSC 299A	Projects in Nutrition and Food Sciences	0
Cultures and Histories Elective		3
		Total 15

Second Term		Credits
MKTG 210	Principles of Marketing	3
NFSC 287	Food Processing	2
NFSC 289	Food Processing Lab	1
MNGT 215	Fundamentals of Management and Organizational Behavior	3
NFSC 296	Current Topics in Food Sciences and Nutrition	1
NFSC 299B	Projects in Nutrition and Food Sciences	2
Cultures and Histories Elective		3
		Total 15

Course Descriptions

Core Courses

NFSC 210 Statistics in Nutrition and Food Sciences 2.3; 3 cr.
An introduction to the study of statistics as it applies to nutrition and food sciences. Topics include both descriptive and inferential statistics: samples, population, and types of data; organizing and graphing data; numerical descriptive measures; probability; discrete random variables and their probability distributions; continuous random variables and the normal distribution; point and interval estimation and hypothesis testing; correlation and simple linear regression; Chi-Square tests. Students will learn to use the computer package SPSS for statistical analysis. Students cannot receive credit for NFSC 210, STAT 201, STAT 210, STAT 230, ECON 213, or EDUC 227.

NFSC 221 Basic Nutrition 3.0; 3 cr.
The course is a survey of nutrients, including their food sources, digestion, metabolism, functions, and requirements in humans.

NFSC 261 Introductory Biochemistry 3.0; 3 cr.
The course focuses on the chemistry of biological compounds, their enzymatic degradation and intermediary metabolism. Prerequisite: CHEM 208.

NFSC 265 Food Chemistry 3.0; 3 cr.
The course focuses on the study of the chemical composition and physical and sensory properties of foods. Prerequisite: CHEM 208.

NFSC 267 Food Analysis 1.3; 2 cr.
The course exposes students to laboratory methods for chemical analysis of nutrients and chemicals in food products. Prerequisites: CHEM 205 and CHEM 209. Pre/corequisite: NFSC 265.

NFSC 272 Introduction to Food Service and Industries 1.3; 2 cr.
The course is an introduction to food service and the food industry. This course explains the food chain system and describes the food service institutions and different food industries; it also includes visits to different institutions in the food chain. Prerequisites: junior status, FSMT II. Spring.

NFSC 277 Food Microbiology I 3.0; 3 cr.
It is a survey of microorganisms and their role in causing food spoilage and food poisoning, and the control of microbial spoilage and pathogenic microorganisms in foods.

NFSC 278 Food Microbiology II 2.3; 3 cr.
The course focuses on the study of the microbiological aspects of food preservation; beneficial utilization of microorganisms in food applications; detection of microbial contamination and hazards of importance to public health. Prerequisite: NFSC 277. Fall.

NFSC 280 Summer Training in Food Establishments 1 cr.
The course involves students in supervised training in one of the food service institutions or food industries. Prerequisites: NFSC 272 and NFSC 282. Summer.

NFSC 282 Food Quality Management 3.0; 3 cr.
The course covers basic principles of food quality control, quality assurance, and quality management in food service establishments and food industries; emphasis on modern concepts such as HACCP, ISO 9000, and Good Manufacturing Practice. Spring.

NFSC 287 Food Processing 2.0; 2 cr.
The course focuses on the principle of food spoilage, food preservation and the different methods of food processing. Prerequisites: NFSC 265, and NTDT III or FSMT III.

NFSC 288 Technology of Food Products 2.3; 3 cr.
The course focuses on technology and preservation methods of food products. It also includes laboratory exercises in the pilot plant in food preservation, processing, and quality control testing. Prerequisites: FSMT III, AGRL IV, NTDT III, or NDCP III.

NFSC 289 Food Processing Laboratory 0.3; 1 cr.
The course involves students in laboratory exercises in the pilot plant in food preservation, preparation, and processing. Pre/corequisite: NFSC 287. Prerequisites: NTDT III, NDCP III or FSMT III.

NFSC 291 Elements of Food Engineering 3.0; 3 cr.
Basic concepts and principles of food engineering; emphasis on food handling and unit operations utilized in food processing. Prerequisites: MATH 204 and FSMT II. Fall.

NFSC 296 Current Topics in Food Sciences and Nutrition 1 cr.
Seminar presentation on current topics in food sciences and nutrition. Prerequisite: FSMT III.

NFSC 299A Projects in Nutrition and Food Sciences 0 cr.
The course is a directed study. It is a tutorial in current topics in nutrition and food sciences that is designed to introduce the students to the skills necessary to execute research projects in their academic discipline. Prerequisite: NTDT or FSMT III. Fall.

NFSC 299B Projects in Nutrition and Food Sciences 2 cr.
The course is a directed study. It is a tutorial in current topics in nutrition and food sciences that complements NFSC 299A. It is designed to help guide the students execute a project in their academic discipline. Prerequisites: NFSC 210, NFSC 299A, CITI.

AGSC 212 Microeconomic Theory of Food and Farming 3.0; 3 cr.
The course introduces economic principles which are then used to explain the production of goods and services, household behavior, economic equilibrium, and the welfare consequences of alternative exchange mechanisms. Special applications will be given to decision-making and the allocation of resources for the agricultural firm, consumer behavior, and demand for agricultural and food products. Students cannot receive credit for both AGSC 212 and ECON 211; the two courses will be treated as equivalent.

BS in Nutrition and Dietetics (NTDT)

This is a three-year program, which will lead to a BS degree in nutrition and dietetics (NTDT). The NTDT's mission statement is to enhance the nutritional well-being and health of individuals, families, and populations through the promotion of scholarship in human nutrition and dietetics. The program is science-oriented, student-centered, and committed to excellence in teaching, training, research, and outreach service. The core values encompass the development of human potential and provide a collegial environment that fosters the professional growth of students for a career in nutrition and dietetics. This diverse and dynamic profession integrates human nutrition, food service administration, food science, biology, chemistry, physiology, and interpersonal skills.

Graduation Requirements

To be eligible for graduation with the degree of BS in nutrition and dietetics (NTDT), students must:

- Complete a minimum of 97 term credit hours for the NTDT program.
- Complete a minimum of six terms of residency.
- Achieve an overall minimum average grade of C+ (GPA 2.3).
- Be approved for graduation by the faculty.

Classification and Promotion

For clear promotion from year I to year II, students must complete a minimum of 30 credits. For promotion from year II to year III, students must complete a minimum of 63 credits. All such credits should be from courses specified in the regular program.

Second BS Degree

To obtain a second BS in nutrition and dietetics, students must complete:

- A minimum of 52 credits while registered at FAFS, including all NTDT II and NTDT III required core courses listed in this catalogue (of which 15 credits can be transferred course credits).
- Additional prerequisite courses as recommended by the Admissions Committee and approved by the Academic and Curriculum Committee.
- At least three terms of residency at FAFS.

Minor in Nutrition and Dietetics

Students already working on a bachelor's degree outside nutrition and dietetics (NTDT) and who wish to obtain a minor in NTDT must apply to the relevant minor before taking any course in the requested minor. The Department of Nutrition and Food Sciences evaluates all applicants for a minor and makes recommendations to the Academic and Curriculum Committee (ACC).

Students are eligible to be considered for a minor in nutrition and dietetics major after completing 24 credit hours in their major with a cumulative grade average of B, a GPA of 3.0. Students are required to complete a minimum of 16 credits for the minor. The courses are: NFSC 221, NFSC 222, NFSC 240, NFSC 265, NFSC 274, NFSC 285, and NFSC 281. Additional courses may be required from agriculture and food Sciences and management students to replace required courses common to the major and minor and/or to fulfill prerequisite courses.

Transfers

Transfer from Other Faculties at AUB to NTDT

Students enrolled at other faculties at AUB may apply for a transfer to the NTDT Program. To be eligible for an internal transfer, applicants must:

- Have completed at least 24 sophomore credits.
- Not be on probation.
- Have achieved a minimum overall cumulative GPA of 3.0.

Applications of transfer students are evaluated and approved by the Department of Nutrition and Food Sciences (NFSC) and the Admission Committee of the faculty. Admission into the program is by selection of the most promising eligible applicants. Top-ranking students of the applying pool of students will be selected based on the number of available places in the NTDT for the term in question.

Upon approval of transfer, the student's complete program of study and course requirements are determined by the department.

Transfer from Other Universities to NTDT

Students currently pursuing an undergraduate degree at another university in Lebanon or abroad may apply for transfer to the NTDT Program. To be eligible for admission to AUB and the NTDT Program, applicants must:

- Be transferring from an appropriately accredited university or institution of higher education recognized by AUB.
- Have successfully completed at least 30 sophomore credits.
- Have achieved a minimum overall cumulative average equivalent to the AUB GPA of 3.0.

Applications of transfer students from other universities are evaluated and approved by the Department of Nutrition and Food Sciences (NFSC) and the Admission Committee of the faculty. Admission into the program is by selection of the most promising eligible applicants. Top-ranking students of the applying pool of students will be selected based on the number of available places in the NTDT for the term in question.

As stated in the General University Academic Information section of the catalogue, applicants should meet the Readiness for University Studies in English before registration.

Upon approval of transfer, the students' complete program of study and course requirement is determined by the department. Transfer of courses from other universities is the prerogative of the NFSC department.

Elective Courses

Candidates for the degrees of BS in nutrition and dietetics must complete a minimum of 9 credits in Cultures and Histories and 3 credits in Human Values.

Curriculum for the BS Degree in Nutrition and Dietetics (NTDT)

A minimum of 97 credits are required for Graduation.

NTDT I

First Term		Credits
BIOL 201	General Biology I	4
CHEM 200	Basic Chemistry and Applications (Understanding the World)	3
CHEM 205	Introductory Chemistry Laboratory	2
ENGL 203	Academic English	3
NFSC 221	Basic Nutrition	3
		Total 15

Second Term		Credits
CHEM 208	Brief Survey of Organic Chemistry (Understanding the World)	3
CHEM 209	Introductory Organic Laboratory	2
ENGL 204	Advanced Academic English	3
PHYL 246	Physiology for Nursing Degree Students and Undergraduates	4
PSYC 201	Introduction to Psychological Science	3
		Total 15

NTDT II

First Term		Credits
AGSC 212	Microeconomics Theory of Food and Farming (Societies and Individuals)	3
NFSC 274	Human Nutrition and Metabolism	3
NFSC 290	Food Service Management	3
NFSC 261	Introductory Biochemistry	3
NFSC 240	Nutrition Status Assessment	2
MNGT 215	Fundamentals of Management and Organizational Behaviors (Societies and Individuals)	3
		Total 17

Second Term		Credits
ARAB	Understanding Communication - Arabic	3
NFSC 285	Nutrition in the Life Cycle	2
NFSC 281	Nutrition in the Life Cycle Lab for NTDT	1
NFSC 265	Food Chemistry	3
NFSC 267	Food Analysis	2
NFSC 229	Menu Planning	1
Cultures and Histories (History of Ideas)		3
		Total 15

NTDT III

First Term		Credits
NFSC 210	Statistics in Nutrition and Food Sciences	3
NFSC 222	Community Nutrition (Community Engaged Learning)	3
NFSC 277	Food Microbiology	3
NFSC 292	Medical Nutrition Therapy I	3
NFSC 294	Medical Nutrition Therapy Lab I for NTDT	1
NFSC 299A	Projects in Nutrition and Food Sciences	0
Cultures and Histories Elective		3
		Total 16

Second Term		Credits
CMPS 209	Computers and Programming for the Sciences (Quantitative Reasoning)	3
NFSC 287	Food Processing	2
NFSC 289	Food Processing Lab	1
NFSC 293	Medical Nutrition Therapy II	3
NFSC 295	Medical Nutrition Therapy Lab II for NTDT	1
NFSC 296	Current Topics in Food Sciences and Nutrition	1
NFSC 299B	Projects in Nutrition and Food Sciences	2
Human Values Elective		3
Cultures and Histories Elective		3
		Total 19

Course Descriptions

Core Courses

NFSC 210 Statistics in Nutrition and Food Sciences 2.3; 3 cr.
An introduction to the study of statistics as it applies to nutrition and food sciences. Topics include both descriptive and inferential statistics: samples, population, and types of data; organizing and graphing data; numerical descriptive measures; probability; discrete random variables and their probability distributions; continuous random variables and the normal distribution; point and interval estimation and hypothesis testing; correlation and simple linear regression; Chi-Square tests. Students will learn to use the computer package SPSS for statistical analysis. Students cannot receive credit for NFSC 210, STAT 201, STAT 210, STAT 230, ECON 213, or EDUC 227.

NFSC 221 Basic Nutrition 3.0; 3 cr.
The course is a survey of nutrients, including their food sources, digestion, metabolism, functions, and requirements in humans.

NFSC 222 Community Nutrition 3.0; 3 cr.
The course is an introduction to key concepts and current topics in community nutrition. The course discusses the role of nutrition in improving the health and well-being of communities and familiarizes students with population nutritional status assessment, principles of nutrition research, and factors involved in planning, implementing, and evaluating community nutrition programs and policies. Prerequisites: NFSC 221 and NFSC 285. Fall.

NFSC 229 Menu Planning 0.3; 1 cr.
The course explores the principles and techniques of menu planning for healthy people. Topics include nutrient needs for optimum health, dietary guidelines, food groups, food portion sizes and the use of exchange lists for meal planning and client nutrition education in both the English and Arabic languages. Prerequisites: NFSC 221 and NFSC 240. Spring.

NFSC 240 Nutritional Status Assessment 1.3; 2 cr.
The course exposes students to the theoretical basis of various aspects of nutritional assessment (counseling dietary assessment, anthropometric measurement, biochemical assays, and clinical assessment). The course also familiarizes students with nutritional status assessment tools and techniques through practical experimentation in the lab. Prerequisite: NFSC 221 and; corequisite NFSC 274. Fall.

NFSC 261 Introductory Biochemistry 3.0; 3 cr.
The course focuses on the study of the chemistry of biological compounds, their enzymatic degradation and intermediary metabolism. Prerequisite: CHEM 208.

NFSC 265 Food Chemistry 3.0; 3 cr.
The course focuses on the study of the chemical composition and physical and sensory properties of foods. Prerequisite: CHEM 208.

NFSC 267 Food Analysis 1.3; 2 cr.
The course explores laboratory methods for chemical analysis of nutrients and chemicals in food products. Prerequisites: CHEM 205 and CHEM 209; pre/corequisite: NFSC 265.

NFSC 274 Human Nutrition and Metabolism 3.0; 3 cr.
The course explores human physiological needs for energy, carbohydrates, fats, proteins, vitamins, minerals, and control of nutrient metabolism. Prerequisites: NFSC 221, NFSC 261, and PHYL 246. Fall.

NFSC 277 Food Microbiology I 3.0; 3 cr.
The course is a survey of microorganisms and their role in causing food spoilage and food poisoning, and the control of microbial spoilage and pathogenic microorganisms in foods.

NFSC 281 Nutrition in the Life Cycle Lab for NTDT 0.3; 1 cr.
The course emphasizes practical applications of the principles of nutrition and human development in the context of normal physiological changes that occur throughout the life cycle. It includes evidence-based recommendations and interventions to improve nutrition status and food-related behaviors through the life cycle for individuals, groups, and populations. Prerequisites: NFSC 221 and NFSC 274. Corequisites: NFSC 229 and NFSC 285. Spring.

NFSC 285 Nutrition in the Life Cycle 2.0; 2 cr.
The course focuses on the basic nutritional needs of individuals throughout their life cycle: infancy, childhood, adolescence, adulthood and old age, and special nutritional requirements for pregnancy and lactation. Prerequisite: NFSC 221. Prerequisite: NFSC 274. Spring.

NFSC 287 Food Processing 2.0; 2 cr.
The course focuses on the principles of food spoilage, food preservation and the different methods of food processing. Prerequisites: NFSC 265, and NTDT III or FSMT IIII.

NFSC 289 Food Processing Laboratory 0.3; 1 cr.
The course involves students in laboratory exercises in the pilot plant in food preservation, preparation, and processing. Pre/corequisite: NFSC 287. Prerequisites: NTDT III, NDCP III or FSMT III.

NFSC 290 Food Service Management 2.3; 3 cr.
The course explores techniques of management of functional operation of food service; field trips, self-study modules, reports, and discussion. Prerequisite: NFSC 221; pre/corequisite: MNGT 215.

NFSC 292 Medical Nutrition Therapy I 3.0; 3 cr.
The course examines selected metabolic diseases, HIV, and cancer by covering their etiology, metabolic pathways, and the importance of medical nutrition therapy. Prerequisites: NFSC 240, NFSC 274, and NFSC 285. Fall.

NFSC 293 Medical Nutrition Therapy II 3.0; 3 cr.
The course is a thorough review of the nutrition care process in the treatment of diet-related diseases. It prepares students to implement the nutrition care process for various conditions, including but not limited to overweight and obesity, diabetes, cardiovascular, gastrointestinal, and renal diseases; helps students understand the pathophysiology of selected diseases in which nutritional intervention plays a major role, identify the nutritional needs of patients with disease and develop an appropriate patient nutrition care plan. Prerequisites: NFSC 274, NFSC 240, and NSFC 285. Spring.

NFSC 294 Medical Nutrition Therapy Laboratory I for NTDT 0.3; 1 cr.
It is an intensive laboratory course designed to help students learn and practice the application of evidence-based medical nutrition therapy for diseases and disorders discussed in NFSC 292. This is done through the use of self-study modules, case studies, reports and discussions. Prerequisites: NFSC 240, NFSC 274, and NFSC 285. Corequisite: NFSC 292. Fall.

NFSC 295 Medical Nutrition Therapy Laboratory II for NTDT 0.3; 1 cr.
It is an intensive laboratory course designed to help students learn and practice the application of evidence-based medical nutrition therapy for diseases and disorders discussed in NFSC 293. This is done through the use of self-study modules, case studies, reports and discussions. Prerequisites: NFSC 240, NFSC 274, and NFSC 285. Corequisite: NFSC 293. Spring.

NFSC 296 Current Topics in Food Sciences and Nutrition 1 cr.
Seminar presentation on current topics in food sciences and nutrition. Prerequisite: NTDT III.

NFSC 299A Projects in Nutrition and Food Sciences 0 cr.
The course is a directed study. It is a tutorial in current topics in nutrition and food sciences that is designed to introduce the students to the skills necessary to execute research projects in their academic discipline. Prerequisite: NTDT or FSMT III. Fall.

NFSC 299B Projects in Nutrition and Food Sciences 2 cr.
The course is a directed study. It is a tutorial in current topics in nutrition and food sciences that complements NFSC 299A. It is designed to help guide the students execute a project in their academic discipline. Prerequisites: NFSC 210, NFSC 299A, CITI.

NFSC 298 Dietetic Internship 2 cr.
Supervised training of at least 6 months in all areas of dietetic practice, clinical, food service and community at an affiliated medical facility. Offered in spring for fall graduates and in summer for spring graduates and renewable until completion of internship duration.

BS in Nutrition and Dietetics Coordinated Program (NDCP)

This is a four-year program that leads to a BS degree in nutrition and dietetics coordinated program (NDCP). The program has a concentration in medical nutrition therapy (MNT) and combines theoretical and experiential learning in nutrition and dietetics with at least 1035 hours of supervised practice in affiliated medical facilities. The proposed educational framework is based on the knowledge, skills, and core competencies established by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) for entry-level dietitians. Students are first admitted to the didactic nutrition and dietetics program and then apply to the NDCP towards the end of their sophomore year in nutrition and dietetics after the completion of at least 30 credits. AUB's NDCP has been granted candidacy for full accreditation status by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, (312) 899-0040 ext. 5400. Website: https://www.eatrightpro.org/acend.

This verifies that the program is equivalent and comparable in content and experience to United States-based programs meeting the ACEND accreditation standards. The accreditation makes students eligible to sit for the Commission on Dietetic Registration (CDR) examination for dietitians in the United States to obtain the Registered Dietitian (RD) status after they earn a master's degree. The accreditation also allows students, who successfully complete the curriculum within the NDCP program to become eligible for the national colloquium exam to become licensed dietitians in Lebanon. The mission of the NDCP is to equip graduates with the knowledge, expanded skills, and intellectual maturity to become progressive, innovative, and inter-professional practitioners in the dietetic profession, capable of serving the public through the promotion of optimal nutrition, health, and well-being and to serve the profession and larger community through public service and leadership.

More specifically, the program involves several interrelated dimensions and is:

- Dedicated to providing quality education that prepares students for competent practice and current and future roles in the dietetic profession.
- Committed to facilitating the intellectual, personal, professional growth, and lifelong learning of students.
- Committed to developing critical thinking, problem-solving, and leadership skills to prepare students for the challenges of an evolving diverse community and workplace.
- Committed to providing integration of theory with the application of learning through a sequence of supervised practice experiences that encourage students' self-evaluation and self-direction.
- Dedicated to preparing students with added proficiency in providing nutrition education to a variety of clients.
- Committed to providing an environment for students to conduct research and develop professional attitudes, maturity, and an ethical understanding of professional practice, thereby improving the dietetics practice.
- Committed to preparing competent nutrition professionals who perform in adherence to the code of ethics for the profession of dietetics.

Requirements for BS in Nutrition and Dietetics Coordinated Program (NDCP)

Students are first admitted to the three-year nutrition and dietetics program. In addition, a separate application for the NDCP must be submitted during the second term of the sophomore year (upon completion of at least 30 credits). The selection of students for the NDCP is based on the cumulative average of the sophomore year GPA 3.3 or above, unless stated otherwise by the department) and completion of the prerequisite courses. Individuals interested in applying to the NDCP must contact the department for application details towards the end of the sophomore year.

A maximum of 20 students are admitted each year depending on practicum site availability. Students applying to the NFSC department for a second BS in nutrition and dietetics are not eligible for the NDCP.

Graduation Requirements

To be eligible for graduation with the degree of BS in nutrition and dietetics coordinated program (NDCP), students must:

- Complete a minimum of 133 credits hours.
- Complete a minimum of 1035 hours of supervised practice in an affiliated hospital.
- Achieve an overall minimum average grade of B+ (GPA 3.3) in each of the three years of NDCP.
- Achieve an overall minimum average grade of B+ (GPA 3.3) in the supervised practice.
- Complete the program within four and a half years of enrolment in NDCP.

Failure to meet the above NDCP graduate requirements will result in dismissal from the NDCP program in which case students will graduate with a BS in nutrition and dietetics (NTDT).

Classification and Promotion

For clear promotion from year I to year II, students must complete a minimum of 30 credits. For promotion from year II to year III, students must complete a minimum of 63. For promotion from year III to year IV, students must complete a minimum of 97 credits. All such credits should be from courses specified in the regular program.

Transfer

Applying to the NDCP after Transfer into the NTDT

Transfer from Other Faculties at AUB to NDCP

Transfer students from other faculties within AUB who are accepted into the nutrition and dietetics 3-year program should apply separately to the NDCP and may be considered for acceptance into the program based on the number of available places in the NDCP for the term in question after they:

- Have successfully completed at least 30 sophomore credits.
- Have achieved a minimum overall cumulative GPA of 3.3.

Admission into the program is by selection of the most promising eligible applicants. Top ranking students of the applying pool of students will be selected based on the number of available places in the NDCP for the term in question.

Transfer from Other Universities to NDCP

Transfer students from other universities who are accepted into the nutrition and dietetics 3-year program should apply separately to the NDCP. These students may be considered for acceptance on the waiting list of the program based on the number of available places in the NDCP for the term in question after they:

- Have successfully completed at least 30 credits at AUB.
- Have achieved a minimum overall cumulative GPA of 3.3 in courses taken at AUB.

These students may be considered for acceptance into the NDCP as regular students based on the number of available places for the term in question.

It is important to note that credits/courses completed at another institution will not be granted equivalency credits/courses for the NDCP's core courses. Refer to the appropriate section of the catalogue for the list of the program's core courses and their descriptions.

Elective Courses

Candidates for the degrees of BS in nutrition and dietetics coordinated program must complete a minimum of 9 credits in Cultures and Histories and 3 credits in Human Values.

Curriculum for the BS Degree in Nutrition and Dietetics Coordinated Program (NDCP)

A minimum of 133 credits are required for graduation

NDCP I

First Term		Credits
BIOL 201	General Biology I	4
CHEM 200	Basic Chemistry and Applications (Understanding the World)	3
CHEM 205	Introductory Chemistry Laboratory	2
ENGL 203	Academic English	3
NFSC 221	Basic Nutrition	3
		Total 15

Second Term		Credits
CHEM 208	Brief Survey of Organic Chemistry (Understanding the World)	3
CHEM 209	Introductory Organic Laboratory	2
ENGL 204	Advanced Academic English	3
PHYL 246	Physiology for Nursing Degree Students and Undergraduates	4
PSYC 201	Introduction to Psychological Science	3
		Total 15

NDCP II (Juniors)

First Term		Credits
AGSC 212	Microeconomics Theory of Food and Farming (Societies and Individuals)	3
NFSC 240	Nutrition Status Assessment	2
NFSC 261	Introductory Biochemistry	3
NFSC 274	Human Nutrition and Metabolism	3
MNGT 215	Fundamentals of Management and Organizational Behavior (Societies and Individuals)	3
Cultures and Histories (History of Ideas)		3
		Total 17

Second Term		Credits
ARAB 201 or higher	Understanding Communication – Arabic	3
NFSC 285	Nutrition in the Life Cycle	2
NFSC 265	Food Chemistry	3
NFSC 267	Food Analysis	2
NFSC 286	Nutrition in the Life Cycle Lab for NDCP	1
NFSC 290	Food Service Management	3
NFSC 229	Menu Planning	1
NFSC 225A	Job Shadowing	0
		Total 15

Summer Term		Credits
CMPS 209	Computers and Programming for the Sciences	3
NFSC 225B	Job Shadowing	0
Cultures and Histories Elective		3
		Total 6

NDCP III (Seniors)

First Term		Credits
NFSC 210	Statistics in Nutrition and Food Sciences	3
NFSC 222	Community Nutrition (Community-Engaged)	3
NFSC 277	Food Microbiology	3
NFSC 292	Medical Nutrition Therapy I	3
NFSC 279	Medical Nutrition Therapy Lab I for NDCP	1
NFSC 299A	Projects in Nutrition and Food Sciences	0
Human Values Elective		3
		Total 16

Second Term		Credits
NFSC 287	Food Processing	2
NFSC 289	Food Processing Lab	1
NFSC 293	Medical Nutrition Therapy II	3
NFSC 297	Medical Nutrition Therapy Lab II for NDCP	1
NFSC 224	Advanced Nutrition Principles and Practices	1
NFSC 296	Current Topics in Food Sciences and Nutrition	1
NFSC 299B	Projects in Nutrition and Food Sciences	2
NFSC 275	Quantity Food Production	2
NFSC 298W	Dietetic Practicum	1
Cultures and Histories Elective		3
		Total 17

Summer Term (May-June)		Credits
NFSC 298SU	Dietetic Practicum	1
		Total 1

NDCP IV

First Term		Credits
NFSC 283	Nutrition Education and Communication	3
NFSC 284A	Seminar in Clinical Dietetics	1
NFSC 298F	Dietetic Practicum	13
		Total 17

Second Term		Credits
NFSC 284B	Seminar in Clinical Dietetics	1
NFSC 298S	Dietetic Practicum	13
		Total 14

Course Descriptions

Core Courses

NFSC 210 Statistics in Nutrition and Food Sciences 2.3; 3 cr.
An introduction to the study of statistics as it applies to nutrition and food sciences. Topics include both descriptive and inferential statistics: samples, population and types of data; organizing and graphing data; numerical descriptive measures; probability; discrete random variables and their probability distributions; continuous random variables and the normal distribution; point and interval estimation and hypothesis testing; correlation and simple linear regression; Chi-Square tests. Students will learn to use the computer package SPSS for statistical analysis. Students cannot receive credit for NFSC 210, STAT 201, STAT 210, STAT 230, ECON 213, or EDUC 227.

NFSC 221 Basic Nutrition 3.0; 3 cr.
The course is a nutritional survey of nutrients, including their food sources, digestion, metabolism, functions and requirements in humans.

NFSC 222 Community Nutrition 3.0; 3 cr.
The course is an introduction to key concepts and current topics in community nutrition. This course discusses the role of nutrition in improving the health and well-being of communities and familiarizes students with population nutritional status assessment, principles of nutrition research and factors involved in planning, implementing and evaluating community nutrition programs and policies. Prerequisites: NFSC 221 and NFSC 285. Fall.

NFSC 224 Advanced Nutrition Principles and Practices 0.3; 1 cr.
The course explores principles essential for being a successful Registered Dietitian (RD), including code of ethics, scope of dietetics practice, medical coding, and process of nutrition legislation within the United States. Through the use of real-life clinical case study scenarios and role playing, students will use the Nutrition Care Process (NCP) in developing their nutrition care plans, and practice counseling techniques to improve their effectiveness in providing nutrition education and working with an interdisciplinary team. Prerequisite: NDCP III. Spring.

NFSC 225 (A, B) Job Shadowing 0 cr.
Students will shadow dietitians at different types of facilities covering MNT, community nutrition and food service management. Prerequisite: NDCP. NFSC 225A is offered in the fall, and NFSC 225B is offered in the summer.

NFSC 229 Menu Planning 0.3; 1 cr.
The course explores the principles and techniques of menu planning for healthy people. Topics include nutrient needs for optimum health, dietary guidelines, food groups, food portion sizes and the use of exchange lists for meal planning and client nutrition education in both the English and Arabic languages. Prerequisites: NFSC 221 and NFSC 240. Spring.

NFSC 240 Nutritional Status Assessment 1.3; 2 cr.
The course exposes students to the theoretical basis of various aspects of nutritional assessment (counseling dietary assessment, anthropometric measurement, biochemical assays and clinical assessment). The course also familiarizes students with nutritional status assessment tools and techniques through practical experimentation in the lab. Prerequisite: NFSC 221; corequisite: NFSC 274. Fall.

NFSC 261 Introductory Biochemistry 3.0; 3 cr.
The course focuses on the study of the chemistry of biological compounds, their enzymatic degradation and intermediary metabolism. Prerequisite: CHEM 208.

NFSC 265 Food Chemistry 3.0; 3 cr.
The course focuses on the study of the chemical composition and physical and sensory properties of foods. Prerequisite: CHEM 208.

NFSC 267 Food Analysis 1.3; 2 cr.
The course exposes students to laboratory methods for chemical analysis of nutrients and chemicals in food products. Prerequisites: CHEM 205 and CHEM 209; pre/corequisite: NFSC 265.

NFSC 274 Human Nutrition and Metabolism 3.0; 3 cr.
The course focuses on human physiological needs for energy, carbohydrates, fats, proteins, vitamins and minerals; control of nutrient metabolism. Prerequisites: NFSC 221, NFSC 261, and PHYL 246.

NFSC 275 Quantity Food Production 1.3; 2 cr.
It is a course whereby principles and methods of buying, preparing and serving foods for various types of quantity food facilities are considered. Standardization of recipes, cost control, safety and sanitation are practiced. Students demonstrate proficiency with food service equipment and utensils, participate in large-scale recipe preparation, and work in teams to create, plan and produce high quality meal(s) for 40-75 people. Prerequisites: NFSC 290 and NDCP III. Spring.

NFSC 277 Food Microbiology I 3.0; 3 cr.
The course is a survey of microorganisms and their role in causing food spoilage and food poisoning, and the control of microbial spoilage and pathogenic microorganisms in foods.

NFSC 279 Medical Nutrition Therapy Lab I for NDCP 0.3; 1 cr.
It is an intensive laboratory course designed to help students learn and practice the application of evidence-based medical nutrition therapy utilizing the nutrition care process for diseases and disorders discussed in NFSC 292. This is done through the use of self-study modules, case studies, reports and discussions. Prerequisites: NFSC 240, NFSC 274 and NFSC 285. Corequisites: NFSC 292 and NDCP III. Fall.

NFSC 283 Nutrition Education and Communication 3 cr.
The course focuses on principles of health behavior, learning theories and their application to nutrition education and nutrition counseling practice. Equips students with the necessary communication tools and techniques to help prevent nutrition-related disease and promote health. Prerequisite: NDCP IV. Fall.

NFSC 284 (A, B) Seminar in Clinical Dietetics 1 cr.
This course focuses on developing the communication and research skills as well as on strengthening the critical thinking capacities of CP students undergoing an intensive internship program by providing them the opportunity to present and discuss all interesting nutritional issues arising during their CP practicum. It is divided into NFSC 284A and 284B. Prerequisite: NDCP IV.

NFSC 285 Nutrition in the Life Cycle 2.0; 2 cr.
The course focuses on the basic nutritional needs of individuals throughout their life cycle: infancy, childhood, adolescence, adulthood and old age, and special nutritional requirements for pregnancy and lactation. Prerequisites: NFSC 221 and NFSC 274. Spring.

NFSC 286 Nutrition in the Life Cycle Lab for NDCP 0.3; 1 cr.
The course emphasizes the practical applications of the principles of nutrition and human development in the context of normal physiologic changes that occur throughout the lifecycle. It incorporates problem-based learning through case studies and employs the nutrition care process for evidence-based implementation of interventions to improve nutrition status and food related behaviors through the life cycle. Prerequisites: NFSC 221, NFSC 274; corequisites: NFSC 229 and NFSC 285, and NDCP III. Spring.

NFSC 287 Food Processing 2.0; 2 cr.
The course focuses on the principles of food spoilage, food preservation and the different methods of food processing. Prerequisites: NFSC 265, and NTDT III or FSMT III.

NFSC 288 Technology of Food Products 2.3; 3 cr.
The course focuses on technology and preservation methods of food products. It also includes laboratory exercises in the pilot plant in food preservation, processing, and quality control testing. Prerequisites: FSMT III, AGRL IV, NTDT III or NDCP III.

NFSC 289 Food Processing Laboratory 0.3; 1 cr.
The course involves students in laboratory exercises in the pilot plant in food preservation, preparation, and processing. Pre/corequisite: NFSC 287. Prerequisites: NTDT III, NDCP III or FSMT III.

NFSC 290 Food Service Management 2.3; 3 cr.
The course focuses on techniques of management of functional operation of food service, field trips, self-study modules, reports, and discussion. Prerequisite: NFSC 221; pre/corequisite: MNGT 215.

NFSC 292 Medical Nutrition Therapy I 3.0; 3 cr.
The course examines selected metabolic diseases, HIV and cancer by covering their etiology, metabolic pathways and the importance of medical nutrition therapy. Prerequisites: NFSC 240, NFSC 274, and NFSC 285. Fall.

NFSC 293 Medical Nutrition Therapy II 3.0; 3 cr.
The course is a thorough review of the nutrition care process in the treatment of diet-related diseases. The course prepares students to implement the nutrition care process for various conditions, including but not limited to overweight and obesity, diabetes, cardiovascular, gastrointestinal and renal diseases. It helps students: 1) understand the pathophysiology of selected diseases in which nutritional intervention plays a major role, 2) identify the nutritional needs of patients with disease and 3) develop an appropriate patient nutrition care plan. Prerequisites: NFSC 274, NFSC 240, and NSFC 285. Spring.

NFSC 296 Current Topics in Food Sciences and Nutrition 1 cr.
The course is a seminar presentation in current topics in food sciences and nutrition. Prerequisite: NTDT or NDCP III.

NFSC 297 Medical Nutrition Therapy Lab II for NDCP 0.3; 1 cr.
It is an intensive laboratory course designed to help students learn and practice the application of evidence-based medical nutrition therapy utilizing the nutrition care process for diseases and disorders discussed in NFSC 293. This is done through the use of self-study modules, case studies, reports and discussions. Prerequisites: NFSC 240, NFSC 274, and NFSC 285. Corequisites: NFSC 293 and NDCP III. Spring.

NFSC 298 (W, SU, F, S) Dietetic Practicum 28 cr.
The course involves training for a minimum of 1035 hours at an affiliated medical facility. Prerequisite: NDCP IV.

NFSC 299A Projects in Nutrition and Food Sciences 0 cr.
The course is a directed study. It is a tutorial in current topics in nutrition and food sciences that is designed to introduce the students to the skills necessary to execute research projects in their academic discipline. Prerequisite: NTDT or FSMT III. Fall.

NFSC 299B Projects in Nutrition and Food Sciences 2 cr.
The course is a directed study. It is a tutorial in current topics in nutrition and food sciences that complements NFSC 299A. It is designed to help guide the students execute a project in their academic discipline. Prerequisites: NFSC 210, NFSC 299A, CITI.

Elective Courses neither for Nutrition and Dietetics nor for Food Science and Management

NFSC 123 Nutrition and Physical Activity 3.0; 3 cr.
Inadequate physical activity and a poor diet are considered to be leading causes of many major diseases. Exercise has potent effects on the metabolism of both macro and micronutrients. Exercise and nutrition together offer a powerful intervention for many health problems, including sarcopenia, metabolic disease, and obesity. This course is designed to give students an understanding of the fundamental interactions between exercise, nutrition, and health, mainly with lifestyle changes based on current international dietary and physical activity guidelines. Students who receive credit for NFSC 123 cannot receive credit for NFSC 223. Elective.

NFSC 215 Gender, Food, and Nutrition 3.0; 3 cr.
Goal 5 of the United Nations' Sustainable Development Goals (SDGs) aims to "achieve gender equality and empower all women and girls" around the world. While women and girls often have increased nutritional needs during the lifecycle, social norms in many parts of the world frequently lead to gender inequalities in nutrition, which tend to disfavor females. This course discusses nutrition from a gender equality lens and sheds light on their mutually reinforcing relation: improving nutrition is crucial to achieving gender equality and, in turn, improving gender equality contributes to better nutrition. The course will discuss the changing nutritional needs throughout the lifespan, the social and cultural norms affecting food choice, and the prevalent gender disparities in food and nutrition security. The course will also highlight the need to focus on improving nutrition of girls and women as a public health strategy aimed at curbing the growing burden of chronic diseases in modern societies.

NFSC 220 Food and Nutrition Awareness 3.0; 3 cr.
The course introduces the discipline of nutrition and assists students in making optimal food choices for better health. Elective.

NFSC 223 Nutrition and Physical Activity 3.0; 3 cr.
Inadequate physical activity and a poor diet are considered to be leading causes of many major diseases. Exercise has potent effects on the metabolism of both macro and micronutrients. Exercise and nutrition together offer a powerful intervention for many health problems, including sarcopenia, metabolic disease, and obesity. This course is designed to give students an understanding of the fundamental interactions between exercise, nutrition, and health, mainly with lifestyle changes based on current international dietary and physical activity guidelines. Students who receive credit for NFSC 223 cannot receive credit for NFSC 123. Elective.

NFSC 252 Introduction to Food Processing 3.0; 3 cr.
Technology and processing of foods; includes the different technologies applied to preserve and process food from post-harvest stages to being ready for consumption. Processing methods covered relate to cereals, dairy products, meat, poultry, fats and oils, fermentation, fruits, and vegetables, as well as beverages. Elective.

Department of Landscape Design and Ecosystem Management (LDEM)

Chairperson	Abunnasr, Yaser (Director of Nature Conservation Center, NCC)
Professors	Talhouk, Salma; Zurayk, Rami
Associate Professors	Abunnasr, Yaser; Dreksler, Beata
Assistant Professor	Al-Akl, Nayla (Dean of Student Affairs)
Adjunct Associate Professor	Trovato, Maria Gabriella
Lecturer	Bacha, Karim
Senior Instructor	Fabian, Monika

Bachelor of Landscape Architecture

The mission of the program is to graduate lifelong learners and critical thinkers who adopt a holistic view of the landscape, and who are equipped with interdisciplinary, scientific, and creative skills to start as entry-level landscape architects and to become, with experience, successful professionals serving their communities.

This is a four-year professional program which leads to a bachelor of landscape architecture (BLA) and a diploma of Ingenieur Agricole. The program integrates sciences and the arts as a foundation to design, plan and manage landscapes in natural and urban settings.

The BLA program received accreditation from the Landscape Architectural Accreditation Board (LAAB) in September 2021 for a period of six years, making it the first BLA program worldwide to be accredited by LAAB outside the USA. LAAB is the academic arm of the American Society of Landscape Architects (ASLA).

Graduation Requirements

The degree requirements in landscape architecture (BLA) consist of the following:

- Complete a minimum of 144 term credit hours (out of which 108 credit hours of mandatory core courses).
- 27 credits hours of general education courses (total GE requirement of 36 credit hours includes 9 credits satisfied within the landscape architecture core program).
- 9 credit hours of elective courses in FAFS.
- 3 credit hours of a core course in Community Engaged Learning (LDEM 263).
- Achieve an overall minimum grade average of C+ GPA 2.3.
- Be approved for graduation by the faculty.

To meet the general education requirements of AUB, BLA students must complete 27 credits of elective courses as following:

- 6 credit hours in Understanding Communication (English), including ENGL 203 and ENGL 204
- 3 credit hours in Understanding Communication (Arabic)
- 3 credit hours of an approved elective in Cultures and Histories
- 3 credit hours of an approved elective in Human Values
- 6 credit hours of approved electives in Societies and Individuals, including LDEM 262
- 3 credit hours of an approved elective in Quantitative Reasoning
- 3 credit hours of an approved elective in Understanding the World.
- Additional Thematic requirements:

One of the GE courses above has to cover the theme of History of Ideas (CHLA designation), and one course has to cover the theme of Social Inequalities.

Classification and Promotion

For clear promotion from year I to year II, students must complete a minimum of 35 credits. For promotion from year II to year III,students must complete a minimum of 74 credits. For promotion from year III to year IV, students must complete a minimum of 110 credits. All such credits should be from courses specified in the regular program.

Curriculum for the Degree of Bachelor of Landscape Architecture (BLA) and Diploma of Ingénieur Agricole

Year I

Fall Term		Credits
LDEM 202	Studio I: Landscape Design Fundamentals	4
LDEM 200	Landscape Technical Drawing	4
LDEM 214	Landscape and Geomorphology	3
LDEM 207	Landscape Architecture History I (Cultures and Histories)	3
ENGL 203	Understanding Communication - English	3
		Total 17

Spring Term		Credits
LDEM 216	Studio II: Landscape Garden Design	4
LDEM 201	Landscape Descriptive Drawing	4
LDEM 217	Soils in the Landscape (Understanding the World)	3
LDEM 291	Surveying and Base Plan Development	3
LDEM 211	Landscape Horticulture	3
		Total 17

Summer Term		Credits
LDEM 252	Computer Aided Design	3
1 General Education Requirement - Cultures and Histories Elective		3
		Total 6

Year II

Fall Term		Credits
LDEM 222	Studio III: Landscape Planting Design	4
LDEM 210	Botany and Plant Ecology for Landscape Architects	3
LDEM 248	Site Engineering: Construction Material	3
LDEM 219	Plant Material I	2
1 General Education Requirement - Understanding the World Elective		3
		Total 15

Spring Term		Credits
LDEM 204	Studio IV: Cultural Landscape Design	6
LDEM 208	Landscape Architecture History II (Cultures and Histories)	3
LDEM 247	Site Engineering: Earthworks, Roads, and Drainage	4
LDEM 263	Landscape Appreciation and Site Analysis (Community-Engaged Learning course)	3
LDEM 221	Plant Material II	1
		Total 17

Summer Term		Credits
LDEM 249	Site Engineering: Design Implementation	3
LDEM 231	Sustainable Water Management Techniques	3
FAFS Elective		3
		Total 9

Year III

Fall Term		Credits
LDEM 246	Studio V: Natural Landscape Design	6
LDEM 251	Geographic Information System (GIS)	3
LDEM 218	Landscape Ecology	3
1 General Education Requirement - Societies and Individuals Elective		3
		Total 15

Spring Term		Credits
LDEM 228	Studio VI: Urban Landscape Design	6
LDEM 265	Landscape Management	3
1 General Education Requirement - Quantitative Reasoning Elective	Any course from the GE list, except; MATH 203 (only students coming from Humanities school background can take it); EDUC 271, EPHD 203, and NURS 203	3
LDEM 290	Professional Practice	3
		Total 15

Summer Term		Credits
LDEM 292	Internship (Practicum)	2
		Total 2

Year IV

Fall Term		Credits
LDEM 241	Studio VII: Landscape Capstone Project I	4
LDEM 260	Contemporary Issues in Landscape Architecture	3
ENGL 204	Understanding Communication - English	3
FAFS Elective		3
1 General Education Requirement - Societies and Individuals Elective		3
		Total 16

Spring Term		Credits
LDEM 242	Studio VIII: Landscape Capstone Project II	6
ARAB	Understanding Communication - Arabic	3
FAFS Elective		3
1 General Education Requirement - Human Values Elective (Ethics course)		3
		Total 15

Course Descriptions

Core Courses

The following design courses are part of the program requirements. There is a grade average requirement for LDEM 202, LDEM 216, LDEM 222, LDEM 204, LDEM 246, LDEM 228, LDEM 241 and LDEM 242. Students should maintain a combined average GPA of 2.3 in any two consecutive design studios within any given year during their BLA course of study. Failure to achieve this will result in the students having to repeat the design studio in which they received the lowest grade.

In addition to the above GPA 2.3 rule, students will be allowed to register LDEM 241 and LDEM 242 (Final Year Capstone Project I and II) only if they have successfully met studio passing requirements and passed all core courses prior to the final year.

LDEM 200 Landscape Technical Drawing 4 cr.
This is a course in descriptive geometry and graphic communication in landscape architecture. Students learn to use drawing tools. They acquire techniques of representation of 3D and space on 2D surfaces, including orthogonal (plans, sections, and elevations), paraline (axonometrics and isometrics) and perspective drawings that cover construction of shades and shadows, as well as representation of open space, trees, and elements of the natural and built landscapes. Students are introduced to the basics of manual and digital drawing techniques. The technical drawing techniques are regulated by a set of worldwide conventions used to clarify and visualize ideas and design process.

LDEM 201 Landscape Descriptive Drawing 4 cr.
The focus of the studio is to emphasize visual thinking techniques and graphical information representation. Through the use of multiple media to sketch and draw the landscape, students learn to understand their environment through developing skills in mapping information, understanding their relationships and graphically representing it.

LDEM 202 Studio I: Landscape Design Fundamentals 4 cr.
This course is the first of two fundamental design courses (the second is LDEM 216). It is a foundation for subsequent design courses. It introduces students to theories of design through readings, analysis and hands-on projects. The course is structured as a series of short exercises and is divided into two parts:
Part 1: Fundamental Elements of Landscape Design
This course is an exploration into the modes of space which are two-dimensional surfaces, three-dimensional objects, spatial enclosure and the open continuous landscape. The emphasis is on the media of landform, water, plants, and structures as defining agents of human space in the garden and the landscape at large. The form and character of the space is further determined by the context of the site and the nature of spatial geometry with studies of form, pattern, texture, tone, and color.
Part 2: Basics of Design
This studio introduces students to reading and responding to the site. Goals include learning to experience and record the landscape, design in response to the site, think creatively, generate design ideas and understand design as a process, gain knowledge of design precedents and principles, and learn tools and techniques of visual expression. Students will learn through in-class exercises, reading assignments and design projects. Studio time is divided among lectures, field trips, studio design work, desk critiques, pinups, and presentations.

LDEM 204 Studio IV: Cultural Landscape Design 6 cr.
Part 1: Cultural Landscapes
The cultural landscape studio introduces students to the process of research, planning, design, and management of historically and culturally significant landscapes through selected real-world site projects. Part one introduces methods of assessment, approaches and policies (local and international), case studies of similar projects as well as historical analysis of the study area.
Part 2: Historic Preservation and Design
The course explores landscape design proposals for sites within historically significant areas. Emphasis is on methods of analysis and design development. Graphic and photographic documentation of existing built forms serve as the basis for design proposals. Students engage in the following five steps in the process of their study: 1) Students investigate a landscape's site history using primary and secondary resources. 2) They analyze, document, and evaluate existing conditions. 3) They interpret the significance of the natural, historic, and cultural importance of the landscape site. 4) They recommend appropriate treatment strategies. 5) Finally, they present the findings of this research process. Prerequisite: LDEM 222.

LDEM 207 Landscape Architecture History I 3 cr.
This course aims to explore significant transformation in landscape architecture history and present a range of information to enable the development of alternative, diverse and nuanced communication tools for issues of the landscape. A series of lectures combined with literature study and a visual and textual project analysis aims to guide students to be able to analyze, evaluate and understand historic landscapes in contemporary society. (Students who receive credits for LDEM 207 cannot receive credits for LDEM 107. Fall only).

LDEM 208 Landscape Architecture History II 3 cr.
The course aims to explore the development of designed landscapes and manifestations of landscape architecture from the 18th century to the present. By investigating the complex relationships between people and their environments, it will shed light on the shaping of outdoor space and the evolution of human settlements within built and natural settings. The course will provide a critical and historical understanding of landscape architecture as ideology, experience, spatial form and profession. It will focus on pioneers within the field and on historical examples of gardens, parks, community spaces and environmental planning strategies, which explain landscape designs as products of cultural, political, social, and environmental influences. Prerequisite for LDEM students only: LDEM 207. (Students who receive credits for LDEM 208 cannot receive credit for LDEM 108. Spring only).

LDEM 210 Botany and Plant Ecology for Landscape Architects 3 cr.
This course tackles key concepts, principles and current issues in botany, plant ecology and plant conservation and discusses their application to the Middle East region and to landscape architecture. The course is structured to immerse students in the material and express what they learn through visual interpretation, creative writing and design concepts. Upon completion of the course, students will have solid knowledge and a reference base to readily integrate natural and human made vegetation inro their designs.

LDEM 211 Landscape Horticulture 2.3; 3 cr.
This course covers basic principles of selection and management of landscape plants. Students will learn how to select plants appropriate to site and purpose, and will be introduced to concepts and applications of environmental horticulture and its contribution to the well-being of humans and nature. The course relies on hands-on field projects, site visits, essays, and photo-documentation.

LDEM 214 Landscape and Geomorphology 3 cr.
This course provides crucial insights on how landforms and hence landscapes develop in space and time. It introduces students to the geomorphological underpinnings of landscape formation and trains them to read the natural and anthropogeomorphic aspects of landscapes.

LDEM 216 Studio II: Landscape Garden Design 4 cr.
This course is the second of two design introductory courses. It is a foundation for subsequent courses that explore project design in varied contexts and scales. It introduces students to theory and practice of landscape design and site planning by doing, observing, reading, and reflecting. Students apply knowledge acquired from LDEM 202 on real site contexts with an emphasis on site design. The focus is on two dominant landscape design types: the park (public) and the garden (private). Students will analyze case studies and relevant readings pertaining to both landscape typologies. Prerequisite: LDEM 202.
Part 1: The Park
The focus is on the application of spatial theory and design process to a specific site context. Work will develop map-reading skills at various scales and strengthen drawing, lettering, and cross-section representation skills. The emphasis is on landform design in a public park setting (urban and non-urban).
Part 2: The Garden
The garden is a personal, direct, and intimate expression of landscape architecture. It is explored here as a contemporary art primarily through the design of individual sites and, secondarily, through guided research and discussion sessions which explore important works and design theory in the genre. The emphasis is on developing an informed and creative personal approach that inspires while solving practical problems on real sites. The focus here is on residential gardens or gardens pertaining to institutions. Prerequisite: LDEM 200 and LDEM 202.

LDEM 217 Soils in the Landscape 2.3; 3 cr.
This course will examine soils as integral components of the landscape and as a medium for landscaping activities. It is designed to help students 1) acquire a good understanding of the relationship between geology, landform, soil, vegetation, and landscape, and 2) implement management actions essential in landscaping, such as soil preparation, soil amendment and fertilization. Emphasis will be placed on soils as a component of Mediterranean ecosystems and land mosaics with special focus on soil resources in Lebanon. Labs and field trips will be organized in order to observe and analyze soils in the environment, and to manipulate soil substrates for optimizing plant growth. Prerequisite for LDEM students only: LDEM 214.

LDEM 218 Landscape Ecology 3 cr.
Students will be introduced to the discipline of landscape ecology. The course will focus on the interplay between landscape patterns and ecological processes at large (landscape scale). It also focuses on detecting and characterizing social and natural patterns of influence on landscapes and landscape dynamics. Implications of landscape pattern and landscape management will also be covered. Case studies will be selected from different Mediterranean environments where the co-evolution of human communities with the natural settings have permanently shaped and modified landscape structures and ecosystem functions. The course will also explore applications in relevance to landscape architecture and planning. Prerequisites: LDEM 210 and LDEM 217.

LDEM 219 Plant Material I 1.3; 2 cr.
This course will introduce students to the botanical and horticultural dimension of designed landscapes by focusing on the species and cultivars that have a landscape interest. In the process of learning about landscape plants, students will be introduced to the taxonomic, horticultural, ornamental and landscape aspects of approximately 300 plants during the sessions. Emphasis is placed on major categories of herbaceous plants and woody plants used in landscape including trees, shrubs, vines, flowering plants, ornamentals, and hedge plants commonly utilized in this region by a combination of experiential activities, discussions, online resources and homework assignments. Students will also learn the proper selection and usage of these plants in landscape situations, plant assets and liabilities, alternative plants for various situations and cultural aspects.

LDEM 221 Plant Material II 0.3; 1 cr.
This course will introduce students to the botanical and horticultural dimension of designed landscapes by focusing on the species and cultivars that are used in edible and medicinal native and urban gardens. In the process of learning about landscape plants, students will be introduced to the taxonomic, horticultural, ornamental and landscape aspects of approximately 150 plants during the sessions. Emphasis is placed on major categories of herbaceous plants, as well as on woody ornamentals, fruit trees and native plants used in the landscape including trees, shrubs, and vines. Students will also learn the proper selection and usage of these plants in landscape situations, plant assets and liabilities, alternative plants for various situations and cultural aspects.

LDEM 222 Studio III: Landscape Planting Design 4 cr.
The course introduces students to the basic principles of designing with plants. Landscape architecture combines elements of art and science to create a functional, aesthetic, and spatial experience of the outdoor space. One initial purpose of designing with plants is to understand how to blend technology (the built environment) into the natural surroundings and to bring natural elements into the built environment. In order to work towards a desirable landscape design and hence successful planting plan, students will develop working knowledge of artistic elements, design principles and basic horticultural knowledge of plants. Successful plant composition and layout is obtained with acknowledgement of the importance of plants as a design material that enhances the definition and spatial experience of outdoor spaces. Prerequisites: LDEM 216, LDEM 211, and LDEM 219.

LDEM 228 Studio VI: Urban Landscape Design 6 cr.
The focus of this studio is site design in the urban context. As such, it will enable students to explore the particular challenges of designing in complex urban environments. By their nature, urban environments have multiple layers and meanings and are influenced by an array of forces. Urban landscapes are an amalgam of myriad social, cultural, political, economic, and ecological processes on physical space. Designing in the urban context therefore requires sensitivity to these many layers and influences. Creative response to the challenges of urban environments requires careful attention to the landscape narratives students choose to tell, and how users of a space learn and discover new things from a site. Prerequisite: LDEM 246.
Part 1: Understanding and Analyzing Urban Landscape Systems
The purpose here is to briefly overview basic concepts of urbanism (transportation, infrastructure, zoning laws, real estate markets, economic development, social issues and so on) with strong emphasis on understanding urban open spaces and networks through readings. Students will analyze case studies of similar contexts and analyze urban landscape systems pertaining to the study area.
Part 2: Study Area
An application of urban design theories to various scales of urban design, with special focus on civic scale design elements and spatial and functional requirements. The end goal is to design a landscape system or site with an urban context.

LDEM 231 Sustainable Water Management Techniques 3 cr.
The course will focus on water as a scarce resource in Lebanon and the region. Students will be exposed to theoretical and practical aspects of sustainable water resources management as related to landscape design, namely in the areas of demand efficient water use and management. Students will learn about efficient indigenous and exotic landscape irrigation, surface and subsurface drainage design, rainwater harvesting and water conservation. Offered in the summer term only.

LDEM 241 Studio VII: Landscape Capstone Project I 4 cr.
This course is intended to assist students in selecting an individual capstone project, finding, and organizing appropriate information needed for the project, and establishing parameters and questions for the design and development of the project. The studio focuses on an approved design problem requiring individual work, which will serve as a comprehensive examination. Preparation and presentation include a written and graphic problem statement, analysis and detailed plans or other approaches approved by the instructor. Prerequisites: LDEM 228 and LDEM 246.

LDEM 242 Studio VIII: Landscape Capstone Project II 6 cr.
This course includes the Final Year Project (FYP), conducted with a faculty adviser, and includes collection, analysis, and interpretation of project information. The final studio covers a variety of projects that may include landscape design projects involving fine arts, urban design, and town planning. Students are expected to achieve a comprehensive understanding of ideas, processes, and concepts. This is the capstone project where students demonstrate their acquired design skills and knowledge. They are expected to develop their design, produce presentation drawings, and defend their ideas orally at a professional level. Students are assessed by department faculty. Note: This course fulfills the capstone writing intensive requirement for the landscape architecture major. Prerequisite: LDEM 241.

LDEM 246 Studio V: Natural Landscape Design 6 cr.
This course examines the relationship between ecological landscape design and natural elements/resources. The emphasis is on understanding natural and human/cultural systems and the interactions across. Of primary importance is understanding of ecological processes that occur within. Students will learn the significance of these systems and their potential contribution to sustainable environments while highlighting the threats and opportunities from anthropogenic impacts. As a design studio, students will explore landscape planning and design from the regional to the site-development scale and they will learn how to integrate ecological design and planning frameworks within their design proposals to balance human use and ecological integrity. This will require the ability to synthesize information about natural features, cultural resources, and development patterns to create spatial landscape strategies that address the unique problems and opportunities of a chosen study area. Prerequisite: LDEM 204.

LDEM 247 Site Engineering – Earthworks, Roads and Drainage 4 cr.
This is the second of the three courses in the LDEM site engineering sequence. This course focuses on the study of techniques essential to the horizontal and vertical development of site designs; emphasis on grading, cut and fill calculation, storm-water drainage and management, erosion control, road alignments and earthwork. This is a lecture course with intensive exercises for engineering calculation and drawing techniques. Prerequisite: LDEM 248.

LDEM 248 Site Engineering - Construction Material 3 cr.
This is the first of the three courses in the LDEM site engineering sequence. This course includes presentation and classification of landscape construction and materials: in particular, material types and measurement standards of construction elements. Research studies and case studies will be conducted for designing original landscape construction and material. This course will focus on lectures, exercises and projects dealing with landscape equipment, and design methods. Prerequisites: LDEM 216 and LDEM 291.

LDEM 249 Site Engineering - Design Implementation 2.5; 3 cr.
This is the third and last of the three courses in the LDEM site engineering sequence. This course will serve as a capstone to landscape architectural construction with emphasis on understanding and preparing complete sets of construction documents for landscape architecture projects. It includes methods and procedures necessary for transforming a design idea into a set of construction drawings that is accurate, precise and clearly understood; and the principles, processes and techniques of site engineering for the "hard" and "soft" elements of landscape architecture and surfaces, including wood construction, free-standing and retaining walls, pavement, steps, decks, lighting and planting irrigation. Floor elements, such as paving materials, pedestrian ways, stairs and ramps, are emphasized. Border and enclosure elements, such as walls and fences, are studied. Shelter elements, such as pergolas and gazebos, are explored. Water elements, such as ponds, waterfalls, pools, and fountains, are studied. Outdoor space, furniture, and ornaments, such as benches, litterbins, lighting elements, pedestrian bridges, and decks, are focused upon. Interactions between materials, buildings, spaces, and humans will be explored. In addition, students have exposure to measuring quantities and defining specifications. Students will also implement their designs through hands-on experience. Prerequisites: LDEM 247 and LDEM 248. Offered in the summer term only.

LDEM 251/LDEM 632 Geographic Information System (GIS) 2.3; 3 cr.
This course acquaints students with classical and modern methods of landscape analyses as well as assessment and changes in landscape structure using ArcGIS and its extensions. Students will be gradually introduced to the subject both to acquire and integrate geographic data, and to learn how to analyze and interpret the results. All topics are demonstrated on selected tasks. The goal of this course is to explore various approaches to modeling landscape pattern and change. The focus is on the design and use of computerized geographic information systems for land planning and design decisions and on understanding, describing, and predicting land-use and land-cover. The course will move between social and ecological processes and applications of the models. Students will learn to evaluate the trade-offs associated with use of a particular modeling approach within a given situation, and to implement (at least minimally) several of the approaches discussed.

LDEM 252 Computer Aided Design 4.5; 3 cr.
This is an introductory course that covers computer aided design digital drawings to develop skills for landscape architects to communicate, create and implement. The course includes lectures and computer labs focused on learning the basic commands for drawing in two dimensions including: absolute and relative coordinates; working in layers, paper, and model space; manipulation of text and plotting. The focus is on understanding the software environment and basic applications of AutoCAD and on using relevant tools of this graphic design software to develop high quality landscape design graphic outputs, such as diagrams, perspectives, sections, plans, and 3D models. These skills will enable students to employ computer graphic design tools in landscape architecture studios throughout the rest of their degree courses. Prerequisite: LDEM 200. Offered in the summer term only.

LDEM 260/ URDS 630 Contemporary Issues in Landscape Architecture 3 cr.
This course addresses recent trends in landscape architecture that cover the multitude of approaches, in order to broaden the students' theoretical knowledge, encourage their critical and analytical abilities, and sharpen their understanding of systems and the landscape as a cultural expression. The course discusses recent interventions by landscape architects in different parts of the world and assesses them in relation to their natural, cultural and socioeconomic contexts. At the same time, students are asked to critically evaluate the current open space situation in Beirut and discuss ideas and approaches related to it. Prerequisites (for LDEM students only): LDEM 207 and LDEM 208.

LDEM 263 Landscape Appreciation and Site Analysis 3 cr.
This course introduces students to specific landscapes of Lebanon and teaches them how to read spaces by analyzing the interrelationship between natural conditions, human settlement, and land use over time. The course is based on an integrated view of the landscape, taking into consideration both natural and cultural components. Students will be exposed to different approaches to perceiving, reading, and interpreting the landscape. Prerequisite: LDEM 291.

LDEM 265 Landscape Management 3 cr.
This course is designed to help students acquire the necessary knowledge to produce landscape management manuals. Students will also have the opportunity to learn about the various aspects and issues related to landscape management by reading and discussing peer-reviewed articles related to the field or observing the management of actual projects. Prerequisites: LDEM 211, LDEM 217, LDEM 231 and LDEM 249.

LDEM 290 Professional Practice 3 cr.
The course discusses the professional practice of landscape architecture. It is structured to give students an overview of the professional opportunities, roles, and responsibilities within which graduates of the program will most likely practice their trade. The course will be structured as a series of lectures, workshops, discussions and presentations from practicing landscape architects, engineers and other professionals who will expose students to different aspects of the trade. It introduces basic issues in the practice and profession of landscape architecture, challenging the students to critically examine professional, ethical, economic, political, social, and other issues in the current practice. It covers the different typologies of landscape projects, firms and clients, and introduces the full cycle of a landscape project from award and conception to construction and site supervision.

LDEM 291 Surveying and Base Plan Development 2.3; 3 cr.
The course focuses on the fundamentals of plane surveying: basic measurement of distance, angles, and elevations. It also focuses on the use of basic surveying equipment, such as levels and tapes, theodolites, total stations, field notes and basic computations, such as traverse closure and determination of areas. It is comprised of lectures, field work and studio projects dealing with earthwork estimating, storm water management, site surveys, site layout, and horizontal and vertical road alignment. Students will survey a site, collect, and analyze data and transform measurements into a base plan essential for any design process. This will include features such as topographic contours, spot levels, structures, vegetation, water ways, and utilities.

LDEM 292 Internship (Practicum) 2 cr.
The objective of the landscape architecture internship is to offer students the opportunity to broaden their educational experiences by actively participating in a professional landscape architecture, planning, and/or engineering office environment. The intention is to provide an opportunity for exploring the world of landscape architectural practice through professional and reflective activities that address educational goals and objectives. Prerequisites: LDEM III standing and LDEM 290. Offered in the summer term only.

Elective Courses

LDEM 107 Landscape Architecture History I 3 cr.
The purpose of this course is to investigate the history of landscape architecture and understand the process of creating it. The course outlines the principles of landscape history in relation to the history of art, nature, technology, and culture in general and tries to interpret their scientific and artistic meaning within the current debate on the goals of landscape architecture among the other design disciplines. (Students who receive credits for LDEM 107 cannot receive credits for LDEM 207. Freshman-level. Fall only).

LDEM 108 Landscape Architecture History II 3 cr.
The course explores the development of designed landscapes and manifestations of landscape architecture from the 18th century to the present. It will focus on pioneers within the field and on historical examples of gardens, parks, community spaces and environmental planning strategies, which explain landscape designs as products of cultural, political, social, and environmental influences. (Students who receive credits for LDEM 108 cannot receive credits for LDEM 208. Freshman-level. Spring only).

LDEM 203/FEAA 400 Planetary Systems Thinking 3 cr.
This interdisciplinary course introduces students to the principles and practices of sustainability through the lens of socioecological systems. It examines human-environment interactions in the Anthropocene, using frameworks such as Planetary Boundaries and Doughnut Economics. The course integrates systems thinking with technical and design perspectives and invites students to critically explore how sustainability and resilience can be integrated into their disciplines. A strong emphasis is placed on community engagement, encouraging students to interact directly with local stakeholders and develop context-aware solutions for real-world environmental challenges.

LDEM 230 Water and the Environment 3 cr.
This is an introductory course addressing the interactions between water and the natural environment, and the role of human activities in these interactions. This course covers a broad range of topics, including climate change, the hydrologic cycle, watershed hydrology, runoff generation, groundwater, point and nonpoint sources of pollution, best management practices and a multitude of water quality issues. Local, regional, and international case studies will be covered to foster a better understanding of water quality and quantity concepts, applications, and principles. (Open to all students except LDEM students).

LDEM 254/ARCH 061L Regional and Community Studies 1.3; 3 cr.
The department will identify a community-driven project in which local and possible international students will participate. The target community will be selected at least 6 months prior to the start of the summer term. The selection process will depend on input from outreach activities performed by the department and by other academic units with which the department coordinates closely, such as NCC and CCECS. This course focuses on applied knowledge and is thus taught by doing, as in by creating a design that is ready to be applied as well as a full proposal. Landscape designed elements are thus site/context dependent; therefore, applied ecology and cultural landscape history are important to concept development. Students enrolled in the course will work fourteen days on site with community partners and stay with local families during that period, and spend 1 week on campus working on the design and proposal. Working together in groups, students will create a practical design. Using a combination of lectures, discussions, interactions with nature, hands-on projects and community immersion, students will analyze the local environment and design holistic systems that meet the needs of people while respecting the needs of nature.

LDEM 261 Spatial Structure and Movement 3 cr.
The course is concerned with the experience of outdoor and indoor spaces, and the direct influence the placement of any object has on the perception of the latter and on the movement within. The course is based on the assumption that the notion of movement and body proportion for mankind has been a primary design tool throughout history and will try to reevaluate this tool for contemporary design.

LDEM 262 Healing Nature: Theoretical Perspectives and Applications 3 cr.
This course explores the human–nature relationship and aims to deepen students' connection to the natural world. Students will examine theories and research on nature's impact on well-being, develop skills in reading peer-reviewed literature, and reflect on nature experiences assignments. Through field research, they will also investigate how others perceive and relate to nature.

LDEM 264 Interior Landscaping 2.3; 3 cr.
This course is an introduction to the principles and practices of interior landscaping with an emphasis on plant selection and handling, environmental conditions, specifying and maintaining healthy plant materials, developing portfolios of interior planting designs and details for proper installation of drainage and irrigation, and fixed or movable containers. The course also includes design compositions of planned interior landscapes in a creative and aesthetic environment and the availability of plant material on the market.

LDEM 266 Introduction to Edible Landscapes 3 cr.
This course introduces students to the principles of edible landscaping and offers an overview of the history and significance of the topic in our region. Edible landscapes incorporate fruit trees, vegetable plants, as well as wild edible plants in a way that is both productive and aesthetically interesting. The course will shed light on the history and the evolution of human settlements in relation to edible and food growing landscapes within built and natural settings.

LDEM 267 Introduction to Restoration Ecology 3 cr.
This course introduces various practical tools required for the recovery of various degraded, damaged, or destroyed ecosystems with an emphasis on urban ecosystems.

LDEM 268 Introduction to Permaculture Design 3 cr.
Permaculture is an ethically-based design approach which aims to create sustainable human communities through ecological and regenerative design. This course covers the theory and basic principles of permaculture. Students will develop a good knowledge about the permaculture ethics and principles, their applications and how these can be integrated both at urban and at rural surroundings.

LDEM 270 Ornamental Plants for Dry Landscapes 3 cr.
This course is a survey of native, wild, and domesticated plants adapted to dry areas with potential use in dry landscapes, with an overview of the different environmental and physiological factors that determine plant growth and development under such dry conditions.

LDEM 271/ARCH 073/CIVE 686/MECH 681 Sustainable Built Environments 3 cr.
This course enhances knowledge pertaining to design aspects and application possibilities of climate responsive and environmentally friendly buildings. The impact of using construction building materials throughout the lifecycle of projects will also be discussed. At the end of the course, students will be equipped with the necessary knowledge that will enable them to make informed decisions regarding green projects in their careers. Prerequisite: LDEM III or LDEM IV or graduate standing and consent of instructor.

LDEM 272 Landscape Architecture: Gender, Women, and Inclusion 3 cr.
The course places the concept of inclusion and gender at the center of explorations of landscape architecture. It investigates the complex relationships between people and their environments, and the ways in which people read, experience, define and create landscapes. It places an emphasis on the role of women in particular, and the way in which women have shaped, and have been shaped by, their physical environments. It looks at women as users, as thinkers and community leaders, as well as designers, and highlights their overall influence on landscape theory and practice from these different perspectives.

LDEM 298 Special Topics in Landscape Architecture: Project/Workshop 1; 2 or 3 cr.
The project/workshop course provides opportunities for students to participate in hands-on experiences, gain new skills and be exposed to real projects. Students will work on issues and applications that are not included in regular courses. General prerequisites will be identified whenever the project/workshop course is offered. The topic, format, and prerequisites will vary; therefore, it might be repeated for credits.

LDEM 299 Special Topics in Landscape Architecture: Tutorial 1; 2 or 3 cr.
The tutorial provides opportunities for students to pursue directed study readings and preliminary research relevant to their concentration when existing courses do not offer the required subject matter. It covers special topics developed under the direction of a faculty member on a tutorial basis. The topic, format, and prerequisites will vary; therefore, it might be repeated for credits.

AMERICAN UNIVERSITY OF BEIRUT

Faculty of Arts and Sciences (FAS)

Undergraduate

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Zeina Halabieh	Director of Student Services and FAS Space Management
Razan Harb	Senior IT Service Delivery Manager
Ghida Itani	Graduate Studies and Career Services Officer
Zeina Katergi	Executive Officer for Administrative Affairs

Dina Khattab	Academic Affairs Officer
Abeer Khoury	Financial Operations Manager
Hadi Knaiber	Data Analyst
Stephanie Mesrobian	Undergraduate Student Officer
Nadine Rizk	Faculty and Staff Affairs Manager
Razan Sabbidine	Student Records Administrative Officer
Armine Seferian	Communication Officer
Mohamad Ali Sheikh	Building Operator
Heghnar Tachouhie Yeghiayan	Faculty Affairs and Research Support Officer

Historical Background

The Faculty of Arts and Sciences was established in 1866, the same year in which the Syrian Protestant College, now the American University of Beirut, was established. On December 13, 1866, the first class was held, attended by sixteen students, and in 1870 the first five students graduated. Arabic, which was the language of instruction since the inception of the college, was replaced by English in 1882. The university in general, and the Faculty of Arts and Sciences in particular, have survived many crises since 1866, including two world wars, regional and local wars, student strikes, and economic crises. Despite all these hardships, the faculty has continued to develop and to maintain its high academic standards.

Mission

The Faculty of Arts and Sciences embodies AUB's core commitment to the liberal arts and sciences. It offers undergraduate and graduate programs in the arts, humanities, social, natural, and mathematical sciences, and is dedicated to advanced research in all these domains. Through its freshmen and general education programs, it is the university's principal gateway to higher studies and professional education. The faculty, through its teaching and research, promotes free inquiry, critical thinking, academic integrity, and respect for diversity and equality.

Vision

Building upon its rich tradition, the Faculty of Arts and Sciences is determined to position itself at the heart of free inquiry in the Middle East. Free and critical thinking is central to the faculty's teaching, its research, its engagements with the wider community, and its commitment to the thoughtful transformation of all of its activities and structures. The faculty's enhanced undergraduate programs will graduate innovators with a breadth of vision who can be agents of positive change wherever they live and work. The faculty will strategically expand its graduate offerings, especially in areas where it can make a distinctive contribution

and will educate graduate students who are themselves producers of knowledge. The faculty will be recognized internationally for the quality of its research and creative activities in the humanities, social sciences, natural sciences, mathematical sciences, and interdisciplinary areas, whether undertaken in response to regional and global needs or to human curiosity and imagination. The faculty will provide a vital forum for open discussion and engage contemporary issues in ways that resonate far beyond our campus walls.

Undergraduate Programs

Students entering the Faculty of Arts and Sciences as freshmen, except those admitted as special students or students auditing courses, select one of the following programs:

- Preparation for majors offered in arts and sciences
- Preparation for business administration, health sciences, engineering and architecture, or agricultural and food Sciences

Students entering the Faculty of Arts and Sciences as sophomores select one of the following two programs; for each program, a period of three years of study is normally required:

- Bachelor of Arts
- Bachelor of Science

There are four major categories of disciplines in the Faculty of Arts and Sciences. Their distribution according to degree-offering departments is as follows:

- Humanities: Arabic, English, fine arts and art history, history and archaeology, and philosophy
- Social Sciences: economics, education, political studies and public administration, psychology and sociology, anthropology, and media Studies
- Natural Sciences: biology, chemistry, earth sciences, and physics
- Quantitative Thought: computer science and mathematics

Classification of Students

Undergraduate students shall be considered to have completed a class when they have taken and passed 30 or more credits beyond the requirements for the previous class.
Students will not be granted a certificate stating that they have completed a class until they have completed the specified courses in the regular program for that class and have acquired the requisite number of credits. The credit requirements are as follows:

Major and Faculty	Freshman Standing		Sophomore Standing	
For the completion of the freshman class	30 credits	-	-	-
For the completion of the sophomore class	60 credits	Cumulative	30 credits	-
For the completion of the junior class	90 credits	Cumulative	60 credits	Cumulative

Residency and Graduation Requirements

The following are the graduation requirements for the degrees of bachelor of arts (BA) and bachelor of science (BS):

- A minimum of eight terms of residence is required beginning with the freshman class, or six terms beginning with the sophomore class. For purposes of this requirement, two summer terms shall be considered equivalent to one term for one time only.
- Transfer students from other recognized institutions of higher learning must complete at least 45 credits at AUB, out of which a minimum of 21 credits should be in the major. For the purposes of this requirement, two summer terms shall be considered equivalent to one term.
- A minimum of 120 credits for students who enter as freshmen (90 of which should be courses numbered 200 or above) and 90 credits (in courses numbered 200 or above) for students who enter as sophomores.

Departmental Requirements

The requirements are a minimum of 36 credits in the major department, in courses numbered 200 or above, of which a minimum of 30 credits must be numbered 210 or above. Also, a cumulative GPA of 2.3 or C+ in the major plus any additional requirements set by the department. For the distribution of the requirements according to discipline, consult the matrices of the departments in each department entry. Students must be admitted into their departmental major for at least the last term prior to graduation.

Other Requirements

Students must complete elective credits outside their major department as per the program requirements, exclusive of the university course requirements stated above and beyond those of the normal freshman program. Grades of C+ or above in at least 50 credits of courses numbered 200 or above for students entering at the sophomore level are required. Students entering at the freshman level must obtain grades of C+ or above in at least 12 additional credits of courses numbered 100 or above.

Transfers

Students may transfer to majors within the Faculty of Arts and Sciences from outside the university, from another faculty within the university, or from one department to another within the Faculty of Arts and Sciences.

Applicants from outside AUB wishing to transfer to a major in FAS with junior standing should note the following conditions and requirements:

- The applicants must have completed the equivalent of 24 sophomore credits at the university from which they are transferring.
- The applicants must submit an application to the university Office of Admissions along with all the course syllabi taken at their previous university or universities.
- Transfer admission is competitive and limited by the number of spaces available. Normally, successful applicants will have earned a minimum GPA of 3.0 or its equivalent.
- Courses successfully completed at a previous university or universities are transferred provided the students earned a grade equivalent to the AUB grade of C+ in each of the courses for which transfer credit is requested.
- For placement in (or exemption from) the Communication Skills Program, students may petition for course equivalence by presenting relevant documents to the Department of English. If students have not taken any courses equivalent to those offered within the Communication Skills Program, they should be placed in the appropriate course based on their test scores (EEE, TOEFL, or SAT Writing), according to the same guidelines normally followed for newly admitted non-transfer students.
- Students who have transferred must complete at least 45 credits at AUB out of which a minimum of 21 credits should be in their major department for fulfillment of graduation requirements.

AUB students from other faculties wishing to transfer to a major in FAS should note the following conditions and requirements:

- The applicants must have completed at least two full terms (minimum 24 credits) of coursework at AUB.
- The applicants must have attained a minimum cumulative GPA of 2.3 or C+.
- The applicants must have attained a minimum average of 2.3 or C+ in all courses taken in FAS (must be at least 15 credits).
- The applicants must have met the requirements for their prospective major (see Table 1 below).

AUB students wishing to transfer from one major to another in FAS should note the following conditions and requirements:

- The applicants must have completed two full terms (minimum 24 credits) of work in their current major.
- The applicants must have met the requirements for their prospective major (see Table 1 below).

Majorless status students who wish to join a major must submit a “Change of Major” petition to the FAS Undergraduate Admissions Committee, provided students meet the requirements for admission to the new major. For more information, refer to Majorless Status section under General University Academic Information.

AUB Non-Degree Students (NDS) wishing to apply for regular status should note the following conditions and requirements:

- The applicants must submit an application to the Office of Admissions.
- The applicants must have completed the equivalent of the sophomore year at the college or university from which they are transferring (24 credits or the equivalent).
- Grade requirements for transferred courses offered by other faculties at AUB follow the guidelines set by the relevant faculty. All final admissions decisions will depend on the availability of places in the major to which the students apply.
- Courses successfully completed at AUB by non-degree students may be considered for admissions purposes. Once students are admitted, the credits for those completed courses may be transferable towards the students' regular degree (required courses with a minimum grade of C+ and elective courses with a minimum grade of D.
- Courses successfully completed at a previous university or universities are transferred provided students earned a grade equivalent to the AUB grade of C+ in each of the courses for which transfer credit is requested.

Table 1: Requirements for Interdepartmental Transfer within FAS

Major	Requirements
Applied Mathematics	A minimum cumulative average of 2.3 or C+ in MATH 201 and other math courses if taken.
Arabic Language and Literature	A minimum grade of C+ in ARAB 201 or any other upper level ARAB course.
Archaeology	A minimum grade of C+ in any two Cultures and Histories courses, excluding Understanding Communication requirements in Arabic and English.
Art History	A minimum grade of C+ in any two Cultures and Histories courses.
Biology	A grade of B+ or above in each of BIOL 201 and BIOL 202, and a cumulative BIOL average of 3.0 if additional courses are taken (excluding FR courses); a grade of B or above in CHEM 201; and a minimum overall average of 3.0. The aforementioned requirements should be completed in 3 consecutive terms. Transfer to Biology from other departments within the Faculty of Arts and Sciences is competitive and requires departmental approval.
Chemistry	A minimum grade of C+ in CHEM 201; a cumulative average of 2.3 or C+ or more in any one of the following three combinations: MATH 201 and MATH 202, or MATH 201 and PHYS 211, or MATH 201 and CHEM 211.

Computer Science	Completion of CMPS 211 (or MATH 211), a minimum grade of C+ in each of CMPS 201 and CMPS 202, and a cumulative average of 2.3 or C+ in all computer science courses taken.
Earth Sciences	A minimum grade of C+ in GEOL 201 and 203; an average of 2.3 or C+ is required in math and science courses - such courses cannot be taken more than twice; a minimum overall average of 2.3 or C+; completion of MATH 102 or its equivalent; and completion of 10 credits of freshman science courses including CHEM 101 and CHEM 101L, or their equivalents.
Economics	An overall average of 3.0 or more; a minimum grade of B in each of ECON 211 and ECON 212; a minimum average of 2.3 or C+ in ENGL 203 and ENGL 204 (if ENGL 204 is taken); and a minimum cumulative average of 2.3 or C+ in MATH 201 and MATH 202.
Education	A minimum cumulative average of 2.3 or C+ in ENGL 203 and/or ENGL 204; a minimum cumulative average of 2.3 or C+ in EDUC course(s) if taken.
English Language	A minimum grade of C+ in ENGL 203, 204, and 227
English Literature	A minimum grade of C+ in ENGL 203, 204, and one of ENGL 205, 207, and 209 (formerly 201).
History	A minimum grade of C+ in any two Cultures and Histories courses, excluding Understanding Communication requirements in Arabic and English.
Mathematics	A minimum cumulative average of 2.3 or C+ in MATH 201 and other math courses if taken.
Media and Communication	A minimum cumulative average of 3.0 in MCOM 201 and one List A Elective (of the students' choice), a minimum cumulative average of 2.7 in all MCOM courses taken, a minimum grade of B in ENGL 203, and a minimum cumulative average of 3.0 in ENGL 203 and ENGL 204 if taken.
Philosophy	A minimum grade of C+ in any two Cultures and Histories courses, excluding Understanding communication skills requirements in Arabic and English.
Physics	A minimum cumulative average of 2.3 or C+ in PHYS 212, PHYS 214, and other physics courses if taken, and a minimum cumulative average of 2.3 or C+ in MATH 201 and MATH 202.

Political Studies	A minimum grade of C+ in each of PSPA 201 and PSPA 202; and a minimum combined grade average of 2.3 or C+ in ENGL 203 and ENGL 204.
Psychology	A minimum grade of B in PSYC 101 or PSYC 201 and ENGL 204 and an overall average above 3.0 (PSYC 101 or PSYC 201 cannot be repeated more than twice) Students cannot take more than five psychology courses before being admitted to the program. Meeting the minimum requirements for joining the Psychology Department does not guarantee acceptance. Transfer to Psychology from other departments within the university is academically competitive and requires departmental approval.
Public Administration	A minimum grade of C+ in each of PSPA 201 and PSPA 202; and a minimum combined grade average of 2.3 or C+ in ENGL 203 and ENGL 204.
Sociology Anthropology	Minimum grade of C+ in ENGL 203 and ENGL 204, and a grade of C+ or more in one of the following: SOAN 101, SOAN 103, SOAN 201, or SOAN 203. If admission to SOAN is based on SOAN 101 or SOAN 103, any additional SOAN or any social science course is required.
Statistics	A minimum cumulative average of 2.3 or C+ in MATH 201 and other math courses if taken.
Studio Arts	A minimum grade of C+ in any two Cultures and Histories courses.

For further details concerning individual departmental requirements, refer to the relevant sections of this catalogue.

Second Degrees

Refer to Second Degree section under General University Academic Information. Normally, successful second degree applicants who obtained their first degree from outside AUB must have earned a minimum GPA of 3.0 or its equivalent in their first degree.

Study Abroad

Regular FAS students (non-transfer students) in good standing who have completed 24 credits at the sophomore level at AUB and wish to study abroad in an approved program of study, may spend up to one year and earn up to 30 credits at another university. Students must spend their final term in residence at AUB. Transfer of credits will be considered on a course-by-course basis and is contingent upon achieving a grade equivalent to the AUB grade of C+. For more information on study abroad and credit transfer, refer to the Office of International Programs section of the catalogue.

Grading Policies, Incomplete Grades, and Makeup Examinations

To obtain permission to complete the final work in a course, students must submit a petition via the Online Petition and Forms System (OPFS). Whenever possible, medical excuses should be issued by the University Health Services (UHS) or the AUB Medical Center (AUBMC). If the reason for the incomplete work is considered valid by the course instructor, the student's incomplete request is forwarded through the petition workflow for approval. Incomplete requests must be submitted via the OPFS within two weeks of the scheduled date of the missed final exam/paper of the course in question. Late requests will not be entertained without a valid justification. Students who experience a medical emergency during the final exam that prevents them from completing it may request a retake by submitting a "Retake Final Exam" petition on OPFS and attaching the medical report.

Once the applicable petition is approved by the Undergraduate Student Academic Affairs Committee (USAAC), the students will be permitted to complete final work for the course no later than four weeks of the start of the next regular term (excluding summer, since summer is not considered a regular term). After consulting with the students involved, the course instructor sets the time and date of the makeup/due date of the final course work within this specified period. It is the responsibility of the students to find out from their instructor the specific dates by which the work should be completed. If the student's incomplete requests are not approved by USAAC, the course instructor is not entitled to give them any makeup exams or assignments.

Failure

If students fail a course, no re-examination is permitted. If a course is required for graduation, students failing the course must repeat it.

Students may not register for a course more than three times, including withdrawals.

Students who at the end of their senior year fail to attain a cumulative GPA of 2.3 in their major field are required to take additional courses in that field or to repeat courses in which they have scored low grades, provided they are permitted to continue at the university.

Dismissal from a Department

Departments may drop students from their major in case they have an average below 2.3 or C+ in the major courses at the end of their third regular term in the major.

Dismissal from the Faculty

Refer to Dismissal and Readmission section under General University Academic Information.

Application for Readmission

Refer to Dismissal and Readmission section under General University Academic Information. When, in accordance with university regulations, students are dropped, the implication is that they are not qualified to continue their education at AUB. Consideration for readmission is given only if, after spending at least one year, 24 credits, at another recognized institution of higher education, students are able to present a satisfactory record with no failure. Students must have achieved a grade equivalent to the AUB grade of C+ in each of the courses for which transfer credit is requested. Transfer credit is considered after departmental evaluation of the students' coursework. The foregoing regulations on readmission also apply to students dropped from other AUB faculties who apply for admission to the Faculty of Arts and Sciences.

Summer Term

Maximum Load

The maximum academic load during a regular summer term is 9 credits (7 credits for students on probation).

Degree Courses

The degree courses offered during the summer term are identical in standard and content to those offered during the fall and spring terms. For information on non-degree courses and Summer Orientation Programs, refer to the sections on Department of Education and AUB Extension Programs in this catalogue.

Courses

FAS Numbers Preceding Course Titles

- Freshman Courses: They are numbered from 101 to 199; are ordinarily taken during the freshman year and may be counted towards graduation but only as part of the freshman program.
- Introductory Courses: They are from 200 to 209 and may be counted towards graduation whenever taken but cannot be considered as part of the 30 credits above 210 required in the major field.
- Advanced Undergraduate Courses: They are from 210 to 299 and may be counted as credits in the major field.
- Graduate Courses: They are from 300 to 499 (available to senior undergraduates in good standing and upon securing the consent of the department). Odd-numbered courses are normally offered during the fall term whereas even-numbered courses are normally offered during the spring term.

Numbers Following Titles of Courses

The first number following the title of a course indicates the number of class hours given each week. The second number indicates the laboratory or practice hours required each week. The third number indicates the number of credit-hours applied towards graduation. The credit assigned to each course is stated for the term. Each hour of laboratory is considered a 1/3 to 1/2 credit-hour. Courses marked annually are offered at least once during each academic year. Other courses that are marked as alternate years are given accordingly. When frequency of offering is not indicated, the course is offered at the discretion of the department.

Directed Study

Students with an average of at least 3.7 in their major at the beginning of the senior year may elect to pursue a course of directed study. Students with averages below 3.7 may be admitted to directed study at the discretion of the department.

Students who elect a course of directed study choose their subject of directed study in consultation with a faculty member selected by the students with the department's approval. The directed study may consist of independent research, original creative compositions, or directed reading, and it includes the presentation of a report or thesis.

Tutorials

Students can register for a single tutorial of up to 3 credits during their final year at AUB after securing the permission of their department. Grades for tutorials are either P (Pass) or NP (No Pass).

Courses Offered by Other Faculties

Students in the Faculty of Arts and Sciences may also take, for credit, elective courses offered in other faculties. However, FAS students cannot be given academic credit for the following courses: NFSC 220, AVSC 279, and AVSC 280. With regard to courses taken in other faculties, all prerequisites must be satisfied. Some courses may require prior approval from the faculty concerned.

Minors

For the university's general requirements for a minor field of study, refer to the Minor section under General University Academic Information. The Faculty of Arts and Sciences offers disciplinary and interdisciplinary minors, which require the completion of a number of courses before graduation as specified below:

Actuarial Science requires 18 credits: ECON 211, ECON 212, MATH 272, MATH 273, MATH 274, and STAT 230 or STAT 233.

American studies requires 15 credits: AMST 215 and one other 3 credit AMST course (220, 230, 240, 265/266, 275/276), plus three elective courses with American studies content or relevance from other departments (ARCH 023, ENGL 209, 215, 216, 219, 222, 224, 225, 226, 241, HIST 200, 271, 272, 273, 274, 278/279, MCOM 201, 204, 219, 222, 290E, MEST 315M, PHIL 263A, PSPA 220, 237, 251, 293D, SOAN 215). Students can petition to apply a new or special topics course with American Studies content from a different department, and this must be approved first by the CASAR director, then by the FAS Curriculum Committee.

Anthropology requires 15 credits: one core course (SOAN 203 or SOAN 212) and 4 electives from the following: SOAN 203, SOAN 212, SOAN 215–218, SOAN 220–227, SOAN 236, SOAN 237, SOAN 250-252, and SOAN 290 (if selected topic is in anthropology).

Applied mathematics requires 18 credits: MATH 201, MATH 210, either MATH 218 or MATH 219, and 9 more credits in mathematics courses numbered MATH 202, MATH 211 or above, or statistics courses numbered 230 or above. Note: Students can opt for a minor in mathematics or a minor in applied mathematics, but not both.

Arabic and Near Eastern languages requires 15 credits: ARAB 211 or ARAB 212 (or an equivalent language course), at least one course in classical Arabic literature (ARAB 224, 229, 230, 231, 232, 233, 234, 235, 236, 241, 243, 247, 249, 257), at least one course in modern Arabic literature (ARAB 223, 225, 237, 238, 239, 240, 245, 246, 253, 258), plus two other courses in the department.

Archaeology requires 15 credits: Five courses numbered 200 and above, including one of the following: AROL 211, AROL 212, AROL 233, AROL 234, AROL 291, or AROL 292.

Art history requires 15 credits: 6 credits chosen from AHIS 203, AHIS 204, AHIS 207, AHIS 208, AHIS 209, AHIS 210 or equivalents; 6 credits from AHIS 221, AHIS 224, AHIS 225, AHIS 226, AHIS 227, AHIS 244, AHIS 249, AHIS 263, AHIS 281; and 3 credits from AHIS 250, AHIS 251, AHIS 252, AHIS 284, or approved alternate.

Biology requires 15 credits: BIOL 201 (4 credits), BIOL 202 (4 credits), plus at least two courses (provided the prerequisites of these courses are satisfied) to complete the 15 credits required for the minor, except BIOL 200, BIOL 209, BIOL 210, and BIOL 293.

Chemistry requires 16-17 credits: CHEM 201, one lab course from the following list (CHEM 201L, CHEM 203, CHEM 207, CHEM 209 or CHEM 210) and a minimum of 12 credits from courses selected from at least three of the below four chemistry divisions:

- Analytical: CHEM 215, CHEM 219, CHEM 234
- Inorganic: CHEM 228, CHEM 229
- Organic: CHEM 207, CHEM 208, CHEM 211, CHEM 212
- Physical: CHEM 217, CHEM 218, PHYS 212, [CHEM 204 and CHEN214/MECH 310]

Typical choice of minors for different majors:

- Biology: CHEM 201, 201L/210, 211, 212, 215, 228 (16/17 credits)
- Physics: CHEM 201, 201L/209/210, PHYS 212, CHEM 215/217, 208/211/212/228 (16/17 credits)
- Earth Sciences: CHEM 201, 201L/209, 208, 215, 228, 229 (16/17 credits)
- Chemical Engineering: CHEM 201, 207, 219, 204 and CHEN 214/MECH 310, CHEM 215/218/228 (18 credits)

Civil Society, citizenship, and the nonprofit sector requires 15 credits. The requirements are PSPA 222 and PSPA 272 and three electives from the following list of courses: PSPA 202, PSPA 203, PSPA 233, PSPA 235, PSPA 254, PSPA 257, PSPA 260, PSPA 263, PSPA 289G, PSPA 299, ECON 232, ECON 237, MCOM 217, MCOM 252, SOAN 225, SOAN 226, SOAN 240, and SOAN 245. No more than 12 credits can be taken from the same department. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Cognitive science (Suspended as of fall 2020-21) requires 18 credits: PSYC 237 is required. PSYC 237 cannot be counted as a psychology course for the purpose of this requirement. The remaining 15 credits must be chosen from the following courses: BIOL 240, 243, 244, CMPS 201, 211, 261, 262, EDUC 215, 221, ENGL 227, 228, 232, 284, 294, PHIL 211, 220, 221, 222, 223, 257 or 258 (but not both), PSYC 210, 222, 224, 226, 229, 280, on condition that the 15 credits chosen span at least three disciplines. Students may choose a special topics course not listed above (e.g., 290 course codes), provided the topic is within the purview of cognitive science, upon approval of the course coordinator. For single major students, only 3 credits of the 15 credits taken for the minor may count towards the major.

For double major students, 6 credits taken for the minor may count towards the majors, with no more than 3 credits per major. Students are encouraged to take PSYC 237 early in the minor.

Computational sciences an interdisciplinary minor requires 18 credits (excluding prerequisite courses): 12 required credits: (CMPS 201 or CMPS 203, CMPS 202, MATH/CMPS 251, MATH 281 or CMPS 254), and 6 credits from the following: MATH 211 (or CMPS 211), DCSN 200, PHYS 222, or a tutorial course in either PHYS 231 or PHYS 232, a course in bioinformatics, or a chemistry course which has computational contents. New computational courses will be introduced by various departments as future electives for this minor. [Note: This minor is open to computer science students].

Computer science requires 18 credits: CMPS 201, CMPS 202, CMPS 211 (or MATH 211), CMPS 214, 3 credits from the following: CMPS 215, CMPS 221, CMPS 240, CMPS 241, and CMPS 271, and 3 credits from CMPS courses numbered 214 and above (except CMPS 260 and CMPS 269). [Note: This minor is not open to students from the CSE Program].

Creative writing requires 15 credits. Three courses chosen from ENGL 239, ENGL 249, ENGL 250, ENGL 251, ENGL 252, ENGL 253, 254, and ENGL 264. Two 200-level courses chosen from the offerings in Literature, including ENGL 236 (Creative Writing) or any course in creative writing offered by the Department of Arabic and Near Eastern Languages.

Critical humanities requires 15 credits: CHLA 204 or CHLA 206, CHLA 209, and three courses chosen from CHLA 210-214.

Data science requires 18 credits: CMPS 201 or CMPS 203, CMPS 244, CMPS 261, CMPS 262, one of the following (STAT 201, STAT 210, STAT 230, STAT 233, BUSS 200, EDUC 227, ECON 213, or NURS 203), and MATH 218 or MATH 219. [Note: This minor is not open to computer science students and students from the CSE Program].

Earth sciences requires 15 credits: Core course GEOL 201, and any four courses of the following: GEOL 209, GEOL 216, GEOL 213, GEOL 223, and GEOL 227.

Economics requires 15 credits: ECON 211, ECON 212, one of ECON 214 or ECON 239 or ECON 243, at least one of ECON 217 or ECON 227, and at least one elective other than ECON 213 chosen from the available offerings, provided their prerequisite (or equivalent) has been satisfied.

Educational administration and policy requires 15 credits: EDUC 211, EDUC 212, EDUC 213, either EDUC 215 or EDUC 225, and EDUC 230.

Educational psychology requires 15 credits: EDUC 215, EDUC 221, EDUC 223, EDUC 217, and either EDUC 280 or EDUC 232.

English language requires 15 credits: ENGL 227 and four other courses chosen from the department's Language offerings.

English literature requires 15 credits: Two core courses from ENGL 205, ENGL 207, ENGL 209 (formerly ENGL 201), plus three other courses: one comparative literature course (ENGL 240-243), and any two courses from the different categories of the literature curriculum.

Environmental and aquatic sciences requires in addition to BIOL 202 or BIOL 200, a total of 15 credits: one course from BIOL 252, BIOL 250, BIOL 256; one course from BIOL 266, BIOL 246, BIOL 267, BIOL 255; the remaining credits are completed by choosing from the following: CHEM 202, PHIL 209, PSPA 288F, BIOL 240, BIOL 241, BIOL 245, BIOL 246, BIOL 250, BIOL 252, BIOL 254, BIOL 255, BIOL 256, BIOL 258, BIOL 259, BIOL 266, BIOL 267, BIOL 281, BIOL 286, AGSC 215, LDEM 230, AGSC 284, AGSC 295, LDEM 211, LDEM 215, LDEM 203, ENHL 220, CIVE 350, CIVE 450.

A minimum of three courses should be taken outside the students' major field of study and should be chosen from two different disciplines.

Ethics of artificial intelligence (AI) requires 15 credits: PHIL208A/CMPS 269, PHIL 210, PHIL 221 or PHIL228, CMPS 203 or CMPS 201, and CMPS 260 or CMPS 261.

Film and visual culture requires 15 credits: two of the following core courses (ENGL 219, MCOM 206, MCOM 222); two electives from the following: ENGL 241A, ENGL257 (A….Z), MCOM219, MCOM220, MCOM221, MCOM 223, SOAN 236, SOAN 250, or other classes/special topics courses approved by the coordinator of the minor program; and one elective from the following: ENGL 239, ENGL 254A, MCOM 246 or special topics courses approved by the coordinator of the minor program.

Gaming for CMPS majors, engineering, or other sciences requires 18 credits: CMPS 202, CMPS 285, CMPS 288, two courses from ENGL 264, ENGL 297, MCOM 291P, and one of ENGL 245G or EDUC 275.

Gaming for students majoring in social sciences or humanities: requires 18 credits: CMPS 201 or CMPS 203, CMPS 204, GRDS 141, two courses from ENGL 264, ENGL 297, MCOM 291P, and one of ENGL 245G or EDUC 275.

History requires 15 credits: five courses numbered 200 and above. All students, especially those considering graduate work in history, are encouraged to take HIST 287 as one of the five courses.

Human rights and transitional justice, an interdisciplinary minor requires 15 credits: SOAN 245, SOAN 240 or PSPA 235, and three electives from the following: SOAN 221, MCOM 216, MCOM 217, MCOM 221, MCOM 247, SOAN 230, SOAN 232, PSYC 212, PHIL 216, PHIL 252, PSPA 222, PSPA 232 any special topics course in SOAN, PSYC, PHIL, PSPA, which will fit with the minor topic, upon the approval of the respective department chair and the coordinator of the minor program. Students majoring in sociology-anthropology should take at least three courses other than SOAN courses.

International law for non-PSPA majors requires 15 credits: PSPA 213 and PSPA 225; plus three upper-level courses from the following list: PSPA 223, PSPA 226, PSPA 228, PSPA 232, PSPA 233, PSPA 235, PSPA 239, PSPA 288 (if related to the minor's emphasis and approved by the PSPA Department), PSPA 293B, 293C, 293F, PSPA 299 (if approved by the PSPA Department) and SOAN 245.

International law for political studies majors requires 15 credits: PSPA 225, and four upper-level courses from the following list: PSPA 223, PSPA 226, PSPA 228, PSPA 232, PSPA 233, PSPA 235, PSPA 239, PSPA 288 (if related to the minor's emphasis and approved by the PSPA Department), PSPA 293B, 293C, 293F, PSPA 299 (if approved by the PSPA Department) and SOAN 245. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Marine sciences and culture requires 15 credits: MSCU 201, MSCU 202, and MSCU 203, plus any two electives from the following: MSCU 204, MSCU 211, AROL 211, 213, 214, 215, 216, 217, 218, 221, 222, 223, 224, 225, 226, BIOL 246, 255, GEOL 201, 210, 214, and 222.

Mathematics requires 18 credits: MATH 201, MATH 210, either MATH 218 or MATH 219; and 9 more credits in mathematics courses numbered 202, 211, or above; or statistics courses numbered 230 or above. Note: Students can opt for a minor in mathematics or a minor in applied mathematics, but not both.

Media and communication requires 15 credits: two requirements from the following: MCOM 201, MCOM 202, MCOM 203 or MCOM 204; two List A electives from: MCOM 205, MCOM 206, MCOM 215 to MCOM 239, MCOM 290 - MCOM 292; one List B elective from MCOM 240 to MCOM 259, MCOM 293.

Medical humanities requires 15 credits: CHLA 211A, CHLA 215, and three courses that correspond to the theme of health and sickness, and social inequalities (with a focus on race, class, or gender). These courses can be chosen from CHLA 210, CHLA 212, CHLA 213, CHLA 214B, EDUC 225, EDUC 237, EDUC 238, ENGL 234, ENGL 244R, MCOM 247, PHIL 205, PHIL 210, PHIL 222, PSYC 232, SOAN 217. No more than 6 credits may be used to satisfy the requirements for another major or minor.

Music requires 15 credits: 6 credits from: MUSC 220, 221, 230, 235, 239, 250. 6 credits from: MUSC 200, 205, 231. 3 credits from: MUSC 262, 263, 265, 266, 269.

Philosophy requires 15 credits from courses numbered 200 and above, including at least two of the following courses: PHIL 211, PHIL 212, PHIL 213, PHIL 214, and PHIL 225.

Physics requires 18 credits: PHYS 212, 221L and one of the following three courses (PHYS 210, PHYS 211 or PHYS 214), plus 9 credits selected from: PHYS 217, PHYS 220, PHYS 226, PHYS 235, PHYS 236 or a special topic course.

Political studies for non-PSPA majors requires 15 credits: PSPA 201; one of the following three: PSPA 210, PSPA 211, or PSPA 213; and any three upper level courses from the following list: PSPA 214, PSPA 215, PSPA 216, PSPA 217, PSPA 218, PSPA 219, PSPA 221, PSPA 222, PSPA 223, PSPA 225, PSPA 228, PSPA 229, PSPA 231, PSPA 232, PSPA 233, PSPA 234, PSPA 235, PSPA 236, PSPA 237, PSPA 238, PSPA 239, PSPA 250, PSPA 251, PSPA 252, PSPA 253, PSPA 254, PSPA 255, PSPA 256, PSPA 286, PSPA 288, PSPA 290, PSPA 291, PSPA 292, and PSPA 299. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Political studies for public administration majors requires 15 credits: one of the following courses: PSPA 210, PSPA 211 or PSPA 213; and any four upper level courses from the following list: PSPA 214, PSPA 215, PSPA 216, PSPA 217, PSPA 218, PSPA 219, PSPA 221, PSPA 222, PSPA 223, PSPA 225, PSPA 228, PSPA 229, PSPA 231, PSPA 232, PSPA 233, PSPA 234, PSPA 235, PSPA 236, PSPA 237, PSPA 238, PSPA 239, PSPA 250, PSPA 251, PSPA 252, PSPA 253, PSPA 254, PSPA 255, PSPA 256 or PSPA 288. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Psychology requires 15 credits: PSYC 201, PSYC 280; plus three electives from PSYC 210– 236. A minimum cumulative average of 2.7 is required.

Public administration for non-PSPA majors requires 15 credits: PSPA 202, PSPA 212, plus three upper-level courses from the following list: PSPA 222, PSPA 257, PSPA 258, PSPA 259, PSPA 272, PSPA 273, PSPA 275, PSPA 277, PSPA 278, PSPA 288, PSPA 297, or PSPA 298. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Public administration for Political studies majors requires 15 credits: PSPA 212; plus four upper-level courses from the following list: PSPA 222, PSPA 257, PSPA 258, PSPA 259, PSPA 272, PSPA 273, PSPA 275, PSPA 277, PSPA 278, PSPA 289, or PSPA 297. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Public policy requires 15 credits: PSPA 202, PSPA 260 and PSPA 276; plus two upper-level courses from the following list: PSPA 223, PSPA 225, PSPA 238, PSPA 250, PSPA 251, PSPA 252, PSPA 259, PSPA 261, PSPA 262, PSPA 263, PSPA 277, PSPA 278, PSPA 297, or PSPA 298. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Public policy for political studies majors requires 15 credits: PSPA 260 and PSPA 276; plus three upper-level courses from the following list: PSPA 223, PSPA 225, PSPA 238, PSPA 250, PSPA 251, PSPA 252, PSPA 259, PSPA 261, PSPA 262, PSPA 263, PSPA 277, PSPA 278, PSPA 297, or PSPA 298. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Reporting in the digital age requires 15 credits: Three core courses: MCOM 226, MCOM 240 and MCOM 246, and two additional electives from the following: MCOM 215, MCOM 244 (a to z), MCOM 247, MCOM 250, MCOM 251 and any new or related special topics courses as approved by the program.

Semitic studies requires 15 credits: ARAB 213/214 or ARAB 215/216; a second Semitic language other than Arabic (ARAB 213 or 215); ARAB 222; and one of the following: ARAB 211 or 212, ARAB 216, ARAB 227 or ARAB 228, AROL 293/294, AROL 217, AROL 218, AROL 219/220, AROL 226, AROL 227, AROL 228, AROL 231.

Social and political thought requires 15 credits: PSPA 210 or PHIL 216, one senior seminar, and three courses from: ENGL 222, ENGL 235, ENGL 240, ENGL 243, ENGL 247, PHIL 210, PHIL 225, PHIL 251, PHIL 252, PSPA 214, PSPA 215, PSPA 216, PSPA 217, PSPA 218, PSPA 219, PSPA 221, PSPA 290A, PSPA 290B, PSPA 290C, SOAN 213, SOAN 221, SOAN 223, SOAN 290 (after securing the approval of the SPT Committee), ARCH 021, ARCH 022, ARCH 037, ARCH 039 and GRDS 020. No more than 9 credits can be taken from the same department; no more than 3 credits can be counted towards the students' major; no more than 6 credits can be taken from the students' home department.

Sociology requires 15 credits: SOAN 201, SOAN 213, SOAN 237, plus two electives from the following: SOAN 210, SOAN 220, SOAN 222, SOAN 223, SOAN 224, SOAN 225, SOAN 232, SOAN 240–242, SOAN 245 and SOAN 290 (if selected topic in Sociology). Students who take SOAN 101 as freshmen should take SOAN 213, SOAN 237, and three of the electives listed above.

Software development and design requires 18 credits and has no prerequisite courses to get started: CMPS 201, CMPS 202, CMPS 244, CMPS 271 and two of CMPS 270, CMPS 278, CMPS 279 and CMPS 288. [Note: This minor is not open to Computer Science students and students from the CSE Program].

Statistics and Data Analysis can be pursued via one of two options:

- Option 1: MATH 218 or MATH 219, STAT 231, STAT 233, STAT 234, STAT 235, and one additional course with statistical and data analysis applications to be selected with the approval of the department chair.
- Option 2: MATH 218 or MATH 219, STAT 230, STAT 234, STAT 235 and two additional courses with statistical and data analysis applications to be selected with the approval of the department chair. Note that for economics students pursuing a minor in statistics and data analysis, ECON 213 may be taken in place of STAT 230.

STEAM education requires 15 credits: EDUC 230, EDUC 220, EDUC 273, either EDUC 218 or EDUC 231, and either EDUC 271 or EDUC 272.

Studio arts requires 15 credits: Twelve credits taken from the following courses according to sequence and following prerequisites: SART 200, SART 201, SART 202, SART 203, SART 204, SART 206, SART 207, SART 208. Three credits in art history taken from AHIS 203, AHIS 204, AHIS 207, AHIS 208, AHIS 209, AHIS 221, AHIS 222, AHIS 224, AHIS 225, AHIS 226, AHIS 227, AHIS 249, or approved alternative.

Theater requires 15 credits: One of the following options, representing 6 credits, is required: THTR 259 or THTR 250 and THTR 221. Remaining credits may be taken from among the following courses: any THTR course, ARAB 240, CHLA 263, ENGL 212, ENGL 216, ENGL 251, or any course that significantly addresses theater, performance, or dramatic literature, with approval of the chair.

Translation requires 15 credits: two core courses: ARAB 225 and ENGL 233. Three courses from the following list: ARAB 211, ARAB 212, ARAB 226, ARAB 227, ARAB 228, ENGL 221, ENGL 231, ENGL 240-243, ENGL 247, ENGL 255 - any letter, ENGL 262 - any letter, or any course offered by the Department of English with a significant translation studies component, with approval of the chair of the department.

Women and gender studies, an interdisciplinary minor, requires 15 credits: ENGL 234 (Gender and Language), ENGL 258 (any letter) (Gender and Sexuality), EPHD 334 (Reproductive Health), HIST 262 (Gender in Classical Islamic Society), HPCH 202 (Sexuality and Public Health), SOAN 225 (Gender and Culture) Or Special Topics, seminars, and/or course sections with emphases on Gender, Sexuality, and/or Women's Studies – with approval by the chair of the Department of English.

Students who opt for a minor (one or more) must do so while working towards their undergraduate degree at AUB.

To graduate with a minor, students must meet the requirements specified in the Minor section under the General University Academic Information.

Students who have completed the requirements for a minor in any department should fill the Completion of Minor Petition and submit it through the Online Petitions and Forms System (OPFS) after the grades are out and within the deadline set by the Office of the Registrar. The transcript of the students shall indicate the minor(s) chosen.

Professional Studies

The Faculty of Arts of Sciences (FAS) stands at the forefront of extending the university's resources to the wider community by providing high-quality education for diverse learners and organizations seeking excellence, innovation, and real-world impact.

FAS offers a dynamic portfolio of courses, workshops, certificates, and programs through flexible delivery modes, including face-to-face, hybrid, and fully online formats. It also collaborates with corporate and institutional clients across Lebanon and the region to deliver programs that respond to evolving market and workforce needs.

Through these initiatives, FAS actively contributes to societal advancement in alignment with the mission of the American University of Beirut (AUB) to foster knowledge, leadership, and civic responsibility.

Freshman Program

Director	Sabra, Ahmad

The freshman program requires the completion of 30 credits, regardless of the student's target major. Out of these 30 credits, the Ministry of Education and Higher Education requires that:

- For arts majors:
  - At least 9 credits must be in the humanities and social sciences (with at least 3 credits in each of these two areas).
  - At least 3 credits must be in the natural sciences.
  - At least 3 credits must be in mathematics.
  - 15 credits may be in elective courses.
- For science majors:
  - At least 9 credits must be in the humanities and social sciences (with at least 3 credits in each of these two areas).
  - At least 12 credits must be in the natural sciences and mathematics (with at least 3 credits in mathematics and 6 credits in natural sciences).
  - 9 credits may be in elective courses.

In addition, the university requires that 3 credits are taken as ENGL 203. If students are placed in ENGL 102, it may be considered an elective. These students are still required to take ENGL 203 after ENGL 102 to complete their freshman year requirements. Accordingly, ENGL 203 completed within the Freshman Program must be replaced in the undergraduate curriculum by a 3-credit course at the 200 level.

Finally, specific departments may have additional transfer requirements depending on the student's target major of study. These requirements are listed in Table 1 for majors at FAS and in Table 2 for majors in other faculties. A checklist for each major is provided on the website of the freshman program to assist students in meeting the ministry requirements, university requirements, and departmental transfer requirements.

Freshman students must complete all the 30 freshman credits before they can enroll in courses that count towards their sophomore class. Exceptionally, students who have completed at least 26 freshman credits and have at most 4 freshman credits remaining may enroll in courses that count towards their sophomore class for a single term only, typically their third regular term. If students fail their final freshman course, then in the following semester they are only allowed to register the remaining freshman course and must petition for course underload. Students must also satisfy the requirements listed under the Admissions section of this catalogue and the undergraduate General University Academic Information section of the catalogue in order for their freshman year to be granted the equivalency of the Lebanese Baccalaureate Part II.

Advisers

Each freshman student is assigned an adviser who provides support in academic planning, program requirements, and navigating university policies. Students continue working with their advisers until they have completed all their freshman requirements and submitted their freshman equivalence regardless of whether they have been admitted to a major.

Transfer to a Major

Students in the freshman year who are not on probation at the time of application may join a major upon completing at least 26 credits and meeting the major's transfer requirements.

Freshman students who wish to join a major within the Faculty of Arts and Sciences must meet the departmental requirements shown in Table 1. To join a major in FAS, students must submit a "Change of Major" petition to the FAS Undergraduate Admission Committee, provided that they meet the requirements for admission. At FAS, students who remain in the Freshman Program beyond the first year are considered freshman students for transfer purposes until the end of their third regular term. This period may be extended to the end of their fourth regular term if they have not completed more than 45 credits.
Freshman students who wish to transfer to a major in another faculty must meet the faculty requirements shown in Table 2.
Freshman students who do not successfully join a major are redesignated as FAS majorless students after they complete at least 30 credits and at least 4 regular terms.

Premedical Students

Students who wish to follow the premedical track must still declare and complete a major at the undergraduate level. The requirements for premedical students are detailed in the Faculty of Medicine section of the Graduate Catalogue. In addition to the requirements of their intended major, students pursuing the premedical track must complete CHEM 101, CHEM 101L, and either PHYS 103 or PHYS 101, and are advised to take BIOL 101, BIOL 102 during their freshman year.

Freshman Courses

Freshman students must take all their credits as 100-level courses except for ENGL 203. Some of these courses are listed below, arranged according to the areas of study.

Humanities: AHIS 150, ARAB 101, ARAB 102, AROL 101, CHLA 110, CHLA 111, CHLA 112, ENGL 101, ENGL 103, ENGL 104, ENGL 105, ENGL 106, ENGL 107, ENGL 108, HIST 101, HIST 102, HIST 103, HIST 104, MCOM 101, MUSC 150, PHIL 101, PHIL 102, SART 150, SOAN 103, THTR 100, AGSC 105 (from the Faculty of Agricultural and Food Sciences), LDEM 107 and LDEM 108 (from the Maroun Semaan Faculty of Engineering and Architecture).

Social Sciences: ECON 101, ECON 102, PSPA 101, SOAN 101, PSYC 101.

Mathematics: MATH 100, MATH 101, MATH 101I, MATH 102.

Natural Sciences: BIOL 101, BIOL 102, BIOL 104, BIOL 105, BIOL 106, CHEM 101, CHEM 101L, CHEM 102, CHEM 102L, GEOL101, GEOL 102, GEOL 103, GEOL 104, GEOL 105, GEOL 106, PHYS 101, PHYS 101L, PHYS 103, PHYS 103L, NFSC 123 (from the Faculty of Agricultural and Food Sciences), and ENHL 105 (from the Faculty of Health Sciences).

Electives: Any of the courses listed above may be counted as elective courses. In addition, some additional freshman courses that do not fall into any of the above categories and that may be counted as elective courses include: BUSS 101 (from the Suliman S. Olayan School of Business), CMPS 101, ENGL 102.

Math Placement

By default, freshman students are placed in the appropriate math course based on their Math SAT score as follows:

- Students with a Math SAT score of at least 700 will be placed in Math 101.
- Students with a Math SAT score between 570 and 690 will be placed in MATH 101 Intensive.
- Students with a Math SAT score of at most 560, or without a Math SAT score, will be placed in MATH 100.

The Math Placement Test (MPT) is an optional test for students who wish to improve their initial placement. If students opt to take the MPT, they will be placed according to their result in the test as follows:

- Students with a score of at least 70 percent will be placed in MATH 101.
- Students with a score between 60 percent and 70 percent will be placed in MATH 101 Intensive.
- Students with a score below 60 percent will be placed in MATH 100.

Students placed in MATH 101 intensive must register for both MATH 101 and MATH 101i simultaneously.

Students placed in MATH 101 still have the option to take Math 100 or Math 101 Intensive if they choose to do so. Some target majors may only require MATH 100.

Equivalence to Advanced Placement (AP) Courses

Freshman students can receive equivalence to up to 15 credits of AP courses, provided they have a grade of 4 or 5 in these courses. The list of AP subjects and equivalent freshman courses at AUB is shown in Table 3.

Table 1: Requirements to Join a Major in FAS from the Freshman Class

Department	Requirements	Some Useful Electives
Applied Mathematics	A minimum cumulative average of 2.3 in MATH 101 and 102; a minimum grade of C+ in MATH 102.	
Arabic	A minimum cumulative average of 2.3 in ARAB 101 (and 102 if taken).	

Archaeology	A minimum cumulative average of 2.3 in English courses taken in the freshman year.	AROL 101
Art History	A minimum cumulative average of 2.3 in English courses taken in the freshman year.	AHIS 150 and SART 150
Biology	A minimum grade of B in each of the following: BIOL 101 and BIOL 102, CHEM 101, CHEM 101L, PHYS101 or PHYS 103; completion of MATH 101; a minimum overall GPA of 2.3 in the freshman year.	
Chemistry	A minimum cumulative average of 2.3 in CHEM 101, CHEM 101L, CHEM 102, and CHEM 102L; a minimum cumulative average of 2.3 in MATH 101 and 102; completion of PHYS 101 and PHYS 101L.	
Computer Science	A minimum cumulative average of 2.3 in MATH 101 and 102; a minimum cumulative GPA of 2.3 in all courses taken.	
Earth Sciences	Completion of MATH 101, MATH 102, CHEM 101 and CHEM 101L or PHYS 101, and 5 additional credits of natural sciences excluding BIOL 104, BIOL 105, BIOL 106, and NFSC 123; CHEM 101 and CHEM 101L are mandatory for the Petroleum Geoscience track, and PHYS 101 is mandatory for the Engineering Earth Sciences track.	
Economics	A minimum cumulative average of 2.3 in MATH 101 and MATH 102; a minimum cumulative average of 2.3 in English courses taken in the freshman year.	ECON 101, 102
Education	A minimum cumulative GPA of 2.3 in the freshman year.	
English Language	A minimum cumulative average of 2.3 in English Language courses taken in the freshman year.	ENG 107, ENG 108
English Literature	A minimum cumulative average of 2.3 in English literature courses taken in freshman year.	ENGL 101, 103, 104, 105, and 106
History	A minimum cumulative average of 2.3 in English courses taken in the freshman year.	HIST 101, 102, 103, and 104
Mathematics	A minimum cumulative average of 2.3 in MATH 101 and 102, and a minimum grade of C+ in MATH 102.	

Media and Communication	A minimum cumulative average of 2.3 in English courses taken in the freshman year; a minimum cumulative GPA of 2.3 in the freshman year.	
Philosophy	A minimum cumulative average of 2.3 in English courses taken in the freshman year.	PHIL 101, 102
Physics	A minimum cumulative average of 2.3 in PHYS 101 and 101L; a minimum cumulative average of 2.3 in MATH 101 and 102.	
Political Studies	A minimum cumulative average of 2.3 in English courses taken in the freshman year; a minimum cumulative GPA of 2.3 in the freshman year.	PSPA 101 and PSYC 101
Psychology	A minimum grade of B in PSYC 101; a minimum grade of B in ENGL 203, a minimum grade of B in ENGL 204 (if taken); a minimum overall GPA of 3.0.	PSPA 101
Public Administration	A minimum cumulative average of 2.3 in English courses taken in the freshman year; a minimum cumulative GPA of 2.3 in the freshman year.	PSPA 101 and PSYC 101
Sociology Anthropology	A minimum cumulative average of 2.3 in English courses taken in the freshman year.	SOAN 101, 103, PSPA 101, HIST 101-104, A RAB 101, 102, ENGL 101-109 and PHIL 101, 102
Statistics	A minimum cumulative average of 2.3 in MATH 101 and 102, and a minimum grade of C+ in MATH 102.	
Studio Arts	A minimum cumulative average of 2.3 in English courses taken in the freshman year.	AHIS 150 and SART 150

Table 2: Requirements to Join a Major in another Faculty from the Freshman Class

Major/Faculty	Requirements	Some Useful Electives
Agribusiness	Completion of MATH 101; any combination of natural science courses totaling 9 credits; a minimum cumulative GPA of 2.3 in the freshman year.	Courses in the humanities

Agriculture	Completion of MATH 101, CHEM 101, CHEM 101L, and BIOL 101; a minimum cumulative GPA of 2.3 in the freshman year.	Courses in the humanities
Architecture	Completion of MATH 101 and 102, any combination of science courses totaling 9 credits, and minimum overall GPA of 3.3 in the freshman year.	An elective in the humanities or social sciences
Business	A minimum grade of B in any one of the following courses: MATH 100, MATH 101, MATH 102; a minimum cumulative GPA of 3.0 in at least 26 credits taken during the freshman year.	ECON 101, 102
Chemical Engineering	A cumulative average of at least 3.3 in MATH 101, MATH 102, CHEM 101, CHEM 101L, CHEM 102, CHEM 102L, PHYS 101, and PHYS 101L; a minimum cumulative GPA of 3.3 in the freshman year.	An elective in the social sciences
Engineering	A cumulative average of at least 3.3 in MATH 101, MATH 102, CHEM 101, CHEM 101L, PHYS 101, and PHYS 101L; a minimum cumulative GPA of 3.3 in the freshman year.	An elective in the humanities or social sciences
Environmental Health	Completion of MATH 101, CHEM 101 and CHEM 101L.	ENHL 105, PHYS 101/103, and BIOL 101
Food Science and Management	Completion of MATH 101, CHEM 101, 101L, and BIOL 101; a minimum cumulative GPA of 2.7 - in the freshman year.	Courses in the humanities
Graphic Design	Completion of the freshman program; a minimum cumulative GPA of 3.3 in the freshman year.	
Health Communication	A minimum cumulative average of 2.3 in English courses taken in the freshman year; a minimum cumulative GPA of 2.3 in the freshman year.	
Landscape Architecture	Any combination of natural science courses totaling 9 credits; a minimum cumulative GPA of 2.3 in the freshman year.	An elective in each of geology, chemistry, and biology
Medical Imaging Sciences	Completion of PHYS 103 and 103L, MATH 101, MATH 102, and BIOL 101.	CHEM 101 and CHEM 101L

Medical Laboratory Sciences	Completion of MATH 101 and 102, CHEM 101, CHEM 101L, CHEM 102, CHEM 102L, and BIOL 101.	PHYS 103 or PHYS 101
Nursing	Completion of BIOL 101, CHEM 101, CHEM 101L, MATH 100, and a minimum cumulative GPA of 2.7.	Courses open to freshman students, except SOAN 101 and PSYC 101
Nutrition and Dietetics	Completion of CHEM 101,101L, and BIOL 101; a minimum cumulative GPA of 3.0 in the freshman year. Admission is by selection of the most promising eligible applicants.	Courses in the humanities

Table 3: AP Subjects and Equivalent Freshman Courses

Subjects	**AUB Equivalent Freshman Courses**
AP - Biology	BIOL 101(3cr) or BIOL 105 (4cr) or BIOL 106 (3cr)
AP - Precalculus	MATH 100 (3cr)
AP - Calculus (AB)	MATH 101 (3cr)
AP - Calculus (BC)	MATH 101 (3cr) & MATH 102 (3cr)
AP - Chemistry	CHEM 101 (3cr), CHEM 101L (1cr) & CHEM 102 (3cr), CHEM 102L (1cr)
AP - Economics (Mac)	ECON 102 (3cr)
AP - Economics (Mic)	ECON 101 (3cr)
AP - English Language & Composition	ENGL 203 (3cr)
AP - English Literature & Composition	ENGL 203 (3cr)
AP - Environmental Science	GEOL 102 (3cr)
AP - History of Art (0319)	AHIS 150 (3cr)
AP - Physics 1	PHYS 103 (3cr)
AP - Physics B	PHYS 103 (3cr)

AP - Physics C	PHYS 101 (4cr)
AP - Psychology	PSYC 101 (3cr)
AP - World History	HIST 101 (3cr)

General Education Program

Director	Bashour, Bana
Executive Officer	Najiya, Dalia

AUB is committed to offering its students a broad undergraduate liberal arts education. The aim of the general education program is to help us understand ourselves, the world and our role in it. To do so, the program enables students to acquire the analytical skills and habits of lifelong learning that will allow them not only to become effective in whatever area or career they choose, but also to become active citizens of the world. Students will be exposed to a range of intellectual experiences during their time at AUB, including those allowing them to reflect on their own values and responsibilities. We want to give our students the opportunity to make choices and question and test what they believe are their career goals, intellectual interests, and roles in the world.

While being exposed to various fields of knowledge, we also want our students to have the opportunity to experience different modes of learning (lectures, seminars, labs and independent research projects, experiential learning). Different modes of analysis are designed to enhance students' verbal and interactive skills (seminars), writing and analytic skills (research projects), and hands-on experimental skills (laboratories).

In addition to courses in their academic majors and possible minor concentrations in specific fields, all AUB students must satisfy the general education requirements by taking a minimum of 36-39 credits distributed as follows:

Ways of Understanding

- 3 credits in Understanding Communication (Arabic)
- 6 credits in Understanding Communication (English) through ENGL 204 (ENGL 206 in MSFEA)
- Quantitative Reasoning (3-6 credits)
- Writing in the Discipline (3 credits from within the major)

Understanding Ourselves

- Cultures and Histories (9 credits)
- Societies and Individuals (6 credits)

Understanding the World

- Understanding the World (3-6 credits)

Students are required to take a total of 9 credits from Understanding the World and Quantitative Reasoning with at least 3 credits from each.

Understanding Our Role in the World

- Human Values (3 credits)
- Community-Engaged Learning (3 credits)

Thematic Requirements

- Social Inequalities (3 credits from any designation)
- History of Ideas (3 credits from CHLA)

All undergraduate students are required to take one Arabic course during their undergraduate degree to fulfill the Understanding Communication (Arabic) requirement. Students who completed the Lebanese Baccalaureate may register in any Understanding Communication (Arabic) course, except for Arabic as a Foreign Language courses. Students who did not do the Lebanese Baccalaureate are required to take an Arabic Placement Test. These students will be placed in an Understanding Communication (Arabic) course that is appropriate for their Arabic skills, which may include Arabic as a Foreign Language courses.

All new undergraduate students at AUB are required to take Understanding Communication (English) Courses. New undergraduate students are placed in one of the English Communication Skills Courses on the basis of their scores on the TOEFL, the AUB-EN, the SAT Writing or any equivalent standardized test. The Department of English offers a sequence of two core courses, ENGL 203 and ENGL 204, to all AUB undergraduates, and two specialized courses, ENGL 206 to MSFEA students and ENGL 208 to OSB students. New undergraduate students are placed in one of the core courses in the sequence upon matriculation and have to complete the sequence in successive terms.

All students are required to take 9 credits of Cultures and Histories courses and 3 credits of Human Values. All students who wish to register in these courses should have demonstrated English language skills, which placed them in ENGL 203 or above. A minimum of 3 credits must be taken in History of Ideas: CHLA. For details, refer to the Critical Humanities and Liberal Arts section. One elective for all majors should cover the theme of Social Inequalities.

In addition, all undergraduate students are required to take a 3-credit Writing in the Discipline course, which is normally offered in the major.

These distribution requirements may be met by either required or elective courses.

A comprehensive list of approved General Education courses can be found on the general education program website. Active General Education courses in any term may be searched by subject through the AUBsis homepage (Search for General Education Courses). Students are expected to refer to their major degree requirements available in this catalogue before registering for their GE courses.

Students who transfer from other universities or take study-abroad courses should submit the Course Equivalence Petition to their faculties for courses that could count towards fulfilling their GE requirements.

Double Major, Dual Degree, and Second Degree

Students enrolled for dual degrees must satisfy the general education requirements of both majors. Students enrolled for a double major or a second degree should satisfy the general education requirements of one major. For more information on double major, dual degree and second degree, please refer to the General University Academic Information.
Website: https://www.aub.edu.lb/generaleducation/Pages/default.aspx

Department of Arabic and Near Eastern Languages

Chairperson	Armstrong, Lyall Richard (Acting)
Professors	Baalbaki, Ramzi M. (Margaret Weyerhaeuser Jewett Professor of Arabic); Jarrar, Maher Z.; Orfali, Bilal W. (Sheikh Zayed Chair for Arabic & Islamic Studies)
Assistant Professors	Khansa, Enass
Lecturers	Abboud, Hosn; Atiyyah, Najah (Hawwa); Bazzi, Tarif; Bou Fadel, Najm; El Ali, Mariam; El Daif, Rachid; El Mallah, Jihad; Fakhreddine, Jawdat; Ghaddar, Hussein; Moukaled, Sina; Nahas El-Zein, Raghda
Instructors	Malti, Samir

In addition to the BA degree in Arabic language and literature, the Department of Arabic and Near Eastern Languages provides service courses for all students at AUB. ARAB 101 and ARAB 102 must be taken in the freshman year in addition to one more Arabic course (i.e., ARAB 201, ARAB 202, or any other course numbered ARAB 211 or above [ARAB 213, ARAB 214, ARAB 215, ARAB 216, ARAB 217, ARAB 219, and ARAB 220-222 excluded]).

BA in Arabic Language and Literature

Mission Statement

The Department of Arabic and Near Eastern Languages continues to possess a leading role in its own field of learning in the Arab world, maintaining a liberal tradition of education and research. The impressive number of diverse prominent scholars, writers and intellectuals who passed through the department testifies to this remarkable historical achievement. The department has always sought to train students in the critical tools of the discipline, namely language and research skills.

Degree Requirements

Major Requirements

Requirements for the BA degree in Arabic language and literature are as follows: ARAB 211, ARAB 212, ARAB 224, ARAB 231, ARAB 232, ARAB 233, ARAB 237, ARAB 239, ARAB 241, ARAB 243, and ARAB 245 (total 33 credits). In addition, students must select one course from within the other courses in the department (36 total credit-hours).

Students choosing a minor in Arabic are required to take 15 credits of Arabic courses. These courses should include ARAB 211 or ARAB 212 (or an equivalent language course), one course in classical Arabic literature (ARAB 224, 229, 230, 231, 232, 233, 234, 235, 236, 241, 243, 247, 249, 257), one course in modern Arabic literature (ARAB 223, 225, 237, 238, 239, 240, 245, 246, 253, 258), and any two courses in the department.

The minor in Semitic studies requires 15 credits: ARAB 213/214 or Syriac 215/216, a second Semitic language other than Arabic (ARAB 213 or 215), ARAB 222, and one of the following: ARAB 211 or 212, ARAB 216, ARAB 227 or ARAB 228, AROL 293/294, AROL 217, AROL 218, AROL 219/220, AROL 226, AROL 227, AROL 228, AROL 231.

When a required course is not available, it may be replaced by another course within the department provided the students' advisers give consent.

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits).
At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Course Descriptions

ARAB 101 Readings in Arabic Language, Literature and Thought I 3.0; 3 cr.
Introduces students to key language and analytical skills. It addresses disciplines that are central to a liberal arts education such as: anthropology, psychology, sociology, history, and literature. The course explores examples from pivotal contributions to these fields by intellectuals writing in Arabic while also sketching the history of these fields in the Arabic speaking world. In the process, the course hones skills of writing, communication, and analysis in Arabic. Annually.

ARAB 102 Readings in Arabic Language, Literature and Thought II 3.0; 3 cr.
ARAB 102 takes a thematic focus, and introduces Arabic critical thought, and a select set of questions and themes. The course hones reading, writing and analytical skills through engaging with textual and theoretical examinations of the material. Annually.

ARAB 200 Special Arabic 3.0; 3 cr.
A course designed for native speakers of Arabic who have limited pre-college formal study of the Arabic language in Lebanon or abroad. Open to students who are exempted from Arabic. Every term.

ARAB 201 Questions in Contemporary Arab Culture 3.0; 3 cr.
This course aims to explore a number of themes related to contemporary Arab culture(s) and further develop students' communication skills and academic writing in Arabic. Themes which will be examined include: Arab culture(s) and change in a globalized world, tradition and modernity, the self and the other, dynamics of religion and society, women and gender in a changing world, Arab youth and artistic expression. Every term.

ARAB 202 Arabic Technical Writing 3.0; 3 cr.
The course provides guidance in the production of non-literary texts in modern written Arabic, with attention to structure, stylistics, and diction of letters, memos, emails, resumes, reports, proposals, descriptions, instructions, and various types of documentation. Emphasis is on the analysis and production of appropriate rhetorical styles in the various genres of technical communication used in the workplace. Every term.

ARAB 203 Arabic as a Foreign Language I 5.0; 3 cr.
This course is designed to introduce students who have no previous knowledge of Arabic to the Arabic language and culture within its Lebanese setting. The course utilizes an integrated approach to Arabic and emphasizes communicative tasks and contexts. Students will learn to speak and write simple connected sentences about themselves, their families and their immediate environment, and read and listen to short authentic texts. By the end of the course, students reach High Elementary proficiency in Arabic on the ACTFL scale. Equivalent to: MEST 321.

ARAB 204 Arabic as a Foreign Language II 5.0; 3 cr.
This course is designed for students who have a reached a high elementary proficiency in Arabic. The course utilizes an integrated approach that teaches Arabic based on communicative tasks and contexts. Students will learn to speak and write longer sentences about themselves, their families and their immediate environment, and read and listen to longer authentic texts. By the end of the course, students reach intermediate low proficiency in Arabic on the ACTFL scale. Prerequisites: ARAB 203 or placement by a placement examination. Every term. Equivalent to: MEST 322.

ARAB 205 Arabic as a Foreign Language III 5.0; 3 cr.
This course is designed for students who have reached intermediate low proficiency in Arabic. The course utilizes an integrated approach to Arabic that is based on communicative tasks and contexts. The course enhances students' proficiency in the various skills by expanding their vocabulary, control of pronunciation and grammatical structures, and cultural knowledge. Students will give short oral presentations and do short writing projects. By the end of this course, students reach Intermediate Mid proficiency in Arabic on the ACTFL scale. Prerequisites: ARAB 204 or placement by a placement examination. Every term. Equivalent to: MEST 323.

ARAB 206 Arabic as a Foreign Language IV 5.0; 3 cr.
This course is designed for students who have reached an intermediate mid proficiency in Arabic. The course utilizes an integrated approach to Arabic that is based on communicative tasks and contexts. The course further enhances students' proficiency in the various skills by expanding their vocabulary, control of pronunciation and grammatical structures, and cultural knowledge. Students will give longer oral presentations and do more challenging writing projects. By the end of this course, students reach intermediate high proficiency in Arabic on the ACTFL scale. Prerequisites: ARAB 205 or placement by a placement examination. Every term. Equivalent to: MEST 324.

ARAB 207 Arabic as a Foreign Language V 3.0; 3 cr.
This course is designed for students who have reached intermediate high proficiency in Arabic. The course utilizes an integrated approach to Arabic that is based on communicative tasks and contexts. Students will do readings on a variety of topics and genres, and engage in debates, give oral presentations and write short research papers. By the end of this course, students reach advanced low proficiency in Arabic on the ACTFL scale. Prerequisites: ARAB 206 or placement by a placement examination. Every term. Equivalent to: MEST 325.

ARAB 208 Advanced Arabic as a Foreign Language VI 3.0; 3 cr.
This course is designed for students who have reached advanced low proficiency in Arabic. The course utilizes an integrated approach to Arabic and is based on communicative tasks and contexts. Students will be able to comprehend lengthy authentic listening material, give long oral presentations, write extensive compositions, and read authentic Arabic texts for research purposes. By the end of this course, students reach advanced mid proficiency in Arabic on the ACTFL scale. Prerequisites: ARAB 207 or placement by a placement examination. Every term. Equivalent to: MEST 326.

ARAB 209 Advanced Arabic as a Foreign Language VII 3.0; 3 cr.
This course is designed for students who have reached advanced mid level of proficiency in Arabic. The course utilizes an integrated approach to Arabic and is based on communicative tasks and contexts. Students do extensive reading which span a variety of genres, and enhance their skills through work with news broadcasts, documentaries, and television shows. They extended oral presentations and writing activities. By the end of the course, students reach advanced high proficiency in Arabic on the ACTFL scale. Prerequisites: 208 or placement by a placement examination. Every term. Equivalent to: MEST 327.

ARAB 210 Creative Writing 3.0; 3 cr.
A course designed for students who wish to identify and pursue their own creative interests in writing fiction and creative non-fiction. Through discussions, assigned readings, writing exercises and critiques of student writing in a workshop mode, students will critically examine the elements of literary creation. Students who have previously taken ARAB 210A or 210B cannot receive credit for ARAB 210. Every term.

ARAB 211/212 Survey of Arabic Grammar 3.0; 3 cr. (each)
A year-long course on Arabic morphology and grammar. It is comprised of readings from a classical grammatical text and training in sentence structure through i`raab. Annually.

ARAB 213/214 Introductory Biblical Hebrew 3.0; 3 cr. (each)
A class that teaches Biblical Hebrew allowing students who have no background in the subject to read the Bible and discover one of the founding books of our society and a major source of inspiration to many authors throughout history. Prerequisite for ARAB 214 is ARAB 213 or permission of instructor. Annually.

ARAB 215 Introductory Syriac 3.0; 3 cr.
The course provides students with working knowledge of Syriac language and grammar. With the help of a lexicon, students will be expected to read and translate simple Syriac texts. Annually.

ARAB 216 Intermediate Syriac 3.0; 3 cr.
This course complements ARAB 215/MEST 330 'Introductory Syriac', focusing on the reading, translation, and analysis of Syriac texts from various authors, genres, and time periods. In addition, the course provides a review of Syriac grammar. It is intended for those students who have taken the introductory course ARAB 215/MEST 330 or who already have a basic knowledge of Syriac and wish to continue studying the Syriac language for a second term. Prerequisite: ARAB 215 or permission of instructor. Annually.

ARAB 217 Introduction to Syriac Literature 3.0; 3 cr.
The aim of this introductory course is to provide students with an overview of Syriac literature from its origins to the present day. Students who receive credit for ARAB 217 cannot receive credit for MEST 331. Annually.

ARAB 219 Turkish 3.0, 3 cr.
A beginner to mid-level course in modern Turkish with initial emphasis on spoken Turkish and a gradual introduction to reading.

ARAB 220 Introductory Persian I 3.0; 3 cr.
An elementary-level course designed to help students start learning Persian by introducing the Persian alphabet and building communicative skills. The emphasis is on speaking and using the language for communication but all four language skills (listening, speaking, reading, and writing) as well as pronunciation and vocabulary will be emphasized. Every term.

ARAB 221 Introductory Persian II 3.0; 3 cr.
An elementary-level course that helps students continue to expand upon what they have learned in Introductory Persian I. Like its prerequisite, this course also focuses on using the language for communication while teaching all four language skills (listening, speaking, reading, and writing). Annually.

ARAB 222 Introduction to Semitic Studies 3.0; 3 cr.
This class places the Semitic languages of the Levant (Arabic, Hebrew, Phoenician, and Syriac) in their historical perspective by introducing the discipline of Semitic studies, especially in its comparative orientation. Especial emphasis is placed on Arabic dialectology, an often-overlooked aspect of Semitic studies. Annually.

ARAB 223 Arabic in Modern Media 3.0; 3 cr.
This writing-intensive course seeks to immerse students in Arabic journalistic writing styles, while examining and analyzing a range of regional and international news outputs/publications. The course pays special attention to how power differentials plays out in both digital and non-digital platforms and offers an understanding of and training in online writing genres.

ARAB 224 Arabic Stylistics and Metrics 3.0; 3 cr.
This course is dedicated to the study of stylistics (balagha) and metrics (‘arud) through textual and literary analyses. It examines major contributions in stylistics and theories of versification.

ARAB 225 Translation 3.0; 3 cr.
This course offers a general introduction to translation studies: a field that is at the confluence of a number of urgent debates on language, meaning and agency. The students are introduced to these debates as they play out in a number of fields of enquiry in the humanities, sciences, and social sciences. The course delves into pressing concerns over what shapes and informs approaches to translation as a linguistic, textual, and political practice in our multilingual world. The course pays equal attention to the translators themselves, and to analyzing their contributions, choices and projects.

ARAB 227/228 Arabic Linguistics 3.0; 3 cr. (each)
These two courses address various topics of Arabic linguistic sciences, mainly phonetics, semantics, and lexicology. Annually.

ARAB 229 Arabs in Late Antiquity 3.0; 3 cr.
This course looks at the last centuries of what is known as the Jahiliyya, and the early centuries of Islam (into the Umayyad and up to the Abbasid revolution) through the lens of Late Antiquity. With the transformation of Islam into an empire, and Arabic into the language of learning, major encounters, exchanges and translations made possible the emergence of a clear Arab identity.

ARAB 230 Questions, Themes and Genres of Arabic Literature 3.0; 3 cr.
This course explores themes and genres trans-historically and pays special attention to embedding literary trends in broader cultural networks and frameworks. Annually.

ARAB 231 The Ode 3.0; 3 cr.
This course looks at the early odes known as al-Muʻallaqāt which are central for the conception of canonic poetry in Arabic. Through close readings of these poems and of their long history of critical reception, the course explores the history of the formation and reformation of this canon. Special attention is paid to questions of discrepancy in this canon between the Islamic East and Islamic West, as well as to the particular literary, ethical and historical concerns encoded in them. The course also touches on the transformation of the genre across time and languages, especially Farsi and Ottoman Turkish.

ARAB 232 Arabic Poetry: The Making of the Early Canon 3.0; 3 cr.
This course critically examines the canon of Arabic poetry investigating the workings of inclusion and exclusion. The course analyzes poems as a specific site for forming the world, including the furnishing of a sense of community through acts of language use, creativity, and meaning making. Engaging with modern and contemporary debates on what came to be perceived as canonical and classical characteristics of this corpus, the course sharpens critical tools for re-envisioning our sense of poetic practices in Arabic.

ARAB 233/234 Competing Networks and Courts of Patronage 3.0; 3 cr. (each)
This course seeks to undo the restriction of Abbasid literature to a retrospectively curated canon of a supposed golden age. Instead, it takes a wider lens to the co-existing ruling houses competing over the Arabo/Islamic geography, situating the literatures produced through these networks in its broader sociopolitical and cultural universe. In the process, the question of periodizing and mapping Arabic literatures at the time takes center stage.

ARAB 235 Readers of al-Andalus 3.0; 3 cr.
This course looks at al-Andalus, as a historical, literary, cultural, architectural and mythical site, and studies how the multi-lingual, multi-cultural histories lent themselves to exchanges, adaptations and translations within the Iberian Peninsula (Arabic, Hebrew, Spanish), and without (Africa, the Arab world, Europe, and Latin America). The course traces artistic, architectural and literary manifestations of al-Andalus, in its changing performances, as region with shifting geographies, as part of an empire (Islamic east and west), as a cluster of kingdoms, or/and as embedded or exiled communities. Critical of 'The Fall' theorem, the course traces the afterlives of al-Andalus in premodern and modern popular imaginative cultures, in a range of areas from literature and films to politics, diplomacy and law. Annually.

ARAB 236 Qur'anic Studies 3.0; 3 cr.
An introduction to the Qur'an and its interpretations, this course focuses on scholarly debates about the history of the text, and about the linguistic, literary and historical questions that served as sites for approaching the Qur'an and its exegesis. Annually.

ARAB 237/238 Arabic Poetry and Modernity 3.0; 3 cr. (each)
A year-long course studying the conditions that shaped modern Arabic poetry, tracing the phases of its development, and analyzing in detail its various characteristics, questions and manifestations. Every Term.

ARAB 239 The Arabic Novel 3.0; 3 cr.
This course explores the novel as an aesthetic form that asks critical questions about modernity, subjectivity, and value and that seeks to intervene in its social reality. Situating novels in Arabic within broader theoretical debates in the field, the course navigates the polarized debates on this form, its history, and its present. Annually.

ARAB 240 Arabic Drama 3.0; 3 cr.
This course explores performatives genres in Arabic, thinking about their convergence and divergence with "drama" as a broadly conceived form. In so doing, the course explores both dramatic practices in Arabic produced in different periods and it also grapples with the debates on their accurate mode of description and analysis. These questions are situated within the contemporary experimentation with dramatic form in the region, which highlights concerns with the sensory, the spatial and the dialogical. Annually.

ARAB 241 Literary Theory and Criticism 3.0; 3 cr.
A course on literary theory and critique that actively participates in scholarly debates in the discipline, highlighting the implication between acts of interpretation and questions of positionality. Looking at different theoretical currents as proposing not just different critical lexicons but also alternative gestures and modes of orientation with political implications. The course explores the stakes of these different positionalities. Annually.

ARAB 243 Arabic Rhetoric 3.0; 3 cr.
This course reads Arabic prose genres by tracing their rhetorical movements as both narrativistic and conceptual. Reading a single rhetorical trope across a cluster of texts, or reading myriad tropes comparatively, the course offers and in-depth analysis of prose-genres in Arabic as crucial sites of knowledge-production. Annually.

ARAB 245/246 The Lexicon of the Nahda 3.0; 3 cr. (each)
This course examines major terms that shaped the key debates during al-Nahda. While the period is typically taken to be the founding moment of modernity in Arabic, by exploring the long history of these terms and their future horizons drawing on approaches from conceptual, intellectual, and literary histories, the course invites students to think about what is encoded in this popular perception of al-Nahda and its stakes for our understanding of both modernity and premodernity. Annually.

ARAB 247 Beyond the Canon 3.0; 3 cr.
This course examines the corpus known as Middle Arabic literatures (previously known as folk or popular literature), and engages with the exploding question on how to name and situate these works. The Nights traditions (The Thousand and One Nights, and The Hundred and One Nights), the sīra genre, travel accounts, and tales of wonder (ʻajāʼib). The course engages with close examination of the literary/textual traces, but also the genetic histories, readership and circulation of these literatures, their language registers, and the socio-political maps of their appeal and entanglements with official canons. Annually.

ARAB 249 Sufi Literature 3.0; 3 cr.
This course takes an analytical and textual approach to sufi literature, and focuses on a range of literary genres and debates that were produced or inspired by or around key sufi figures, doctrines, historical moments, or practices. Annually.

ARAB 251/252 Special Topics in Arabic Language and Literature 3.0; 3 cr. (each)
A course that varies in content and focuses on selected topics in language and literature. May be repeated for credit. Annually.

ARAB 253 Literature in Times of Change 3.0; 3 cr.
A course that focuses on the questions, authors, and genres that emerge in times of change and crises. Annually.

ARAB 257 The Maqama 3.0; 3 cr.
The course is devoted to the two major representatives of the maqamat genre, its precursor al-Hamadhani (d. 1008) and his more famous emulator al-Hariri (d. 1122). The course will include both close reading of selected passages and discussion of the entire texts of the maqamat. The readings are supplemented by additional texts from other genres in Arabic literature which share sources, literary features, or common discourse with the maqamat, such as al-faraj ba'da al-shidda stories, anecdotes, popular tales, letters, treatises, and ornate prose. Alternate years.

ARAB 258 Arabic Language & Identity 3.0: 3 cr.
A course that examines the interplay between language and identity in the contemporary Arb world. The course explores the definitions of "identity" and the various factors that shape it within individuals and communities. Special focus is placed on analyzing language and identity debates in Lebanon, the Maghreb, Iraq, and the Gulf region and framing them within their relevant historical, ethnic, and socio-economic contexts. Annually.

33 + 3 Credits in Arabic

Modes of Analysis	English and Arabic (9)	Cultures and Histories, Human Values (12 + 33 + 3 + 9)	Societies and Individuals (6)	Understanding the World, Quantitative Reasoning (9: 3/6+3/6)	Community-Engaged Learning (3)
Lecture courses (9+12+33+3 +9+6+3)	Required Arabic course (3) Required English courses: ENGL 203 (3) ,204(3)	Required credits in the Cultures and Histories: 9 credits in History of Ideas and 3 credits Human Values Required Arabic courses (33): ARAB 211(3), 212(3), 224(3), 231(3), 232(3), 233(3), 237(3), 239(3), 241(3), 243(3), 245(3) One elective course from the following or a seminar course (3): ARAB 213(3), 214(3), 218(3), 221(3), 225(3), 227(3), 228(3), 229(3), 230(3), 234(3), 235(3), 236(3), 238(3), 240(3), 246(3), 247(3), 249(3) Electives: 9 credits in other Cultures and Histories	Electives (6)	electives (9): Recommended: a course in computer literacy	required (3)
Seminar (0–6)		Elective Arabic courses: ARAB 251(3), 252(3)			
Laboratory (3)				Computer Lab (3)	
Research project (63)		ARAB 227–241, 243–247, 249			

Department of Biology

Chairperson	Kambris, Zakaria
Professors	Bariche, Michel; Baydoun, Elias; Knio, Khouzama; Kuraydiyyah, Sawsan; Muhtasib, Hala; Osta, Mike; Saoud, Imad; Smith, Colin Andrew; Talhouk, Rabih
Associate Professors	Ghanem, Noel; Jaalouk, Diana; Kambris, Zakaria
Lecturers	Dunya Rizkallah, Hind; El Hallani, Hiba; Sadek, Riyad; Sinnu, Nada; Wehbe, Rim; Zeineddine, Suheir
Instructors	Abdallah, Emane; Al Bahri, Ghosoon; Al-Zein, Mohammad; Daher, Ahmad; Farhat, Julia; Hajjar, Layane; Jaber, Hwaida; Kalout, Zainab Al Hawraa; Rizk, Zeinab; Sayar, Nancy

BS in Biology

Mission Statement

The BS program in biology prepares students for advanced study and careers in research, education, and service in biology-related disciplines. Students will acquire descriptive, experimental, quantitative, and conceptual abilities spanning molecular, cellular, organismal, and ecological levels. Lecture and laboratory courses will emphasize model systems, the role of evolution, diversity of living systems, hypothesis-based reasoning, and communication skills. Science, social science, and humanities coursework will foster creativity, free thought, interdisciplinary skills, and commitment to ethical scholarship.

Degree Requirements

All students admitted as sophomores are eligible to continue in the program provided they obtain, by the end of their third regular term at AUB, a minimum average of 2.3 C+ in their biology courses. Students seeking to be readmitted to the program after being dropped must meet transfer requirements. Students will be considered for transfer to biology provided they obtain a minimum grade of B+ in BIOL 201 and B+ in BIOL 202 and a B or above in CHEM 201 and a 3.0 or above overall average. Meeting the minimum requirements for joining the biology department does not guarantee acceptance. Transfer to biology from other departments within the university is competitive and requires departmental approval. The requirements for a BS degree in biology are 90 credits for students entering the department at the sophomore level. The distribution of these courses is as follows:

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits). At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Major Requirements

Students majoring in biology are required to complete 37 credits of biology: BIOL 201, 202, 220, 223, two of the following four courses: BIOL 224, 252, 260, 270 (students are not allowed to register for two of those four courses during the same term unless they have an F or a W on their transcript for one of these courses from a previous term and students cannot register for two semi-required courses during the same term; however, justified exceptions need chair's approval), BIOL 293, and a minimum of 13 credits in biology elective courses, including at least one lab course. Additionally, BIOL 296 (a 0-credit exit survey) must be taken in the last term of study.

Students are also required to complete 15 credits of Understanding the World, CHEM 201, 210, 211, 212 and PHYS 204 with PHYS 204L, or PHYS 205 with PHYS 205L.

To earn a minor in biology, students must pass 15 credits of biology. The courses are BIOL 201 (4 credits), BIOL 202 (4 credits), plus at least two courses (provided the prerequisites of these courses are satisfied) to complete the 15 credits required for the minor.

Unless otherwise stated, only senior undergraduate biology majors with a GPA of 3.3 or above can register in biology graduate courses with consent of the instructor.

Students from any field can minor in aquatic and environmental sciences by completing, in addition to BIOL 202 or BIOL 200, a total of 15 credits chosen from the following three lists:

- List 1: BIOL 252, BIOL 250, BIOL 256
- List 2: BIOL 266, BIOL 246, BIOL 267, BIOL 255
- List 3: CHEM 202, PHIL 209, PSPA 288F, BIOL 240, BIOL 241, BIOL 245, BIOL 246, BIOL 250, BIOL 252, BIOL 254, BIOL 255, BIOL 256, BIOL 258, BIOL 259, BIOL 266, BIOL 267, BIOL 281

Land and Water Resources: AGSC 215, LDEM 230

Plant Sciences: AGSC 284, AGSC 295

Landscape: LDEM 211, LDEM 215

Ecosystem Management: LDEM 203

Environmental Health: ENHL 220

Civil Engineering: CIVE 350, CIVE 450

One course from each of lists 1 and 2 is required. All students should take at least three of the total required courses in a field outside their major field of study, and these courses should be from at least two different disciplines. Only one of the courses taken from lists 1 and 2 by biology majors minoring in environmental and aquatic studies is counted towards the major.

Course Descriptions

BIOL 101 Basic Concepts in Biology 3.0; 3 cr.
A course that deals with the basic concepts in biology, and prepares students for BIOL 201 and BIOL 202. This course introduces students to the forms and functions of plants and animals, and to the principles of genetics, evolution, and ecology. Every term.

BIOL 102 Basic Concepts in Biology II 3.0; 3 cr.
This course is only intended for freshman students who have taken BIOL 101 and plan to continue their education in the field of biological sciences as it prepares students for BIOL 201 and 202. The course introduces students to the forms and functions of animals. It covers basic anatomy and physiology of animal systems and emphasizes the evolutionary relationships between the different groups of animals. It also introduces students to basic concepts in ecology. Prerequisite: BIOL 101.

BIOL 104 Introduction to Organismal Biology 3.0; 3 cr.
The course introduces basic principles of organismal biology through study of representative groups of unicellular organisms, plants and animals. Topics include the origins of life, major events in the history of life, adaptations of organisms to particular environments, patterns of reproduction in plants and animals, form and function, physiology, and locomotion in animals and ecology. The course is for students who will not continue their education in the sciences. Every term.

BIOL 105 Introductory Biology 3.3; 4 cr.
An introduction to the fundamental principles of biology. This course covers the basis of life, the structure and function of cells and systems, the general classification and diversity of plants and animals, as well as genetics and ecology. Occasionally.

BIOL 106 Contemporary Issues in Biology 3.0; 3 cr.
A course designed to provide freshman students with the scientific background to some of the current topics in biology today. The course introduces students to the general concepts of biology, including origins of life, evolution and organic building blocks. Moreover, the course will cover socially important contemporary topics such as human evolution, fresh water issues, ecology, environmental conservation, cloning, stem cell research, GMOs, diseases and nutrition. Topics will be added and removed as new discoveries are made and news changes. Every term.

BIOL 106 Contemporary Issues in Biology 3.0; 3 cr.
A course designed to provide freshman students with the scientific background to some of the current topics in biology today. The course introduces students to the general concepts of biology, including origins of life, evolution and organic building blocks. Moreover, the course will cover socially important contemporary topics such as human evolution, fresh water issues, ecology, environmental conservation, cloning, stem cell research, GMOs, diseases and nutrition. Topics will be added and removed as new discoveries are made and news changes. Every term.

BIOL 200 Diversity of Life 3.3; 4 cr.
A course that deals with the basic aspects of cell structure and function, heredity, diversity, classification, evolution and interrelationships of living things, and briefly covers organs and systems in animals and plants. Laboratory activity reflects the contents of the course. Not open to biology majors and minors. Prerequisite: Sophomore standing. Every term.

BIOL 201 General Biology I 3.3; 4 cr.
An integrated approach to the biology of organisms covering the organization of life, energy transfer through living systems, perpetuation of life, and diversity of life. Every term.

BIOL 202 General Biology II 3.3; 4 cr.
A study of the anatomy and physiology of plants and animals covering their structure, growth, nutrition, transport, reproduction, development, and control systems. This course focuses also on the relationships between structure and function, and stresses the evolutionary adaptation and changes in the different systems of the major plant and animal groups. Prerequisite: BIOL 201. Every term.

BIOL 209 Concepts and Connections 3.0; 3 cr.
A course that covers the basic aspects of cell structure and function. An overview of heredity, diversity and evolution. Interrelationships of living things and a brief coverage of organs and systems in animals. Not open to biology majors and minors. Sophomore standing is required. Every term.

BIOL 210 Human Biology 3.0; 3 cr.
A course that covers the fundamental principles of cell biology, genetics, and human biology, with emphasis on the morphology, physiology, and disorder of body systems. Not open to biology majors and minors. Students cannot receive credit for all three of the following: BIOL 201, BIOL 202, BIOL 210. Every term.

BIOL 220 Introductory Biochemistry 3.0; 3 cr.
An introduction to the structure-function relationships of biomolecules, cells, enzymes, and the metabolic reactions of living cells. Prerequisites: BIOL 201 and CHEM 211 or CHEM 208, and junior standing. Every term.

BIOL 223 Genetics 3.3; 4 cr.
A course that deals with the basic principles of classical and modern genetics with emphasis on the analysis of genetic material and genetic processes at the molecular level. Prerequisite: BIOL 202. Every term.

BIOL 224 Microbiology 3.3; 4 cr.
A course that deals with micro-organisms, especially bacteria, and in particular those of pathogenic and industrial importance. This course includes basic knowledge on isolation, classification, and the various metabolic processes. Prerequisite: BIOL 223. Every term.

BIOL 225 Molecular Biology 3.0; 3 cr.
A course that introduces the different techniques of molecular biology and recombinant DNA technology, and discusses the most recent advances in the field. Prerequisite: BIOL 223. Occasionally.

BIOL 234 Vascular Plants 2.3; 3 cr.
A course that deals with the structure, life history, and classification of vascular plants, including psilophytes, club mosses, horsetails, ferns, conifers, and flowering plants, emphasizing their evolutionary relationships. Prerequisite: BIOL 202. Occasionally.

BIOL 236 Plant Systematics 2.3; 3 cr.
A course that deals with the relationships between and among vascular plants based on evolutionary principles as expressed by systematics. The course provides underlying principles of systematics, including modern molecular technological approaches. Students deal with plant identification, and classification of the major families of local vascular plants. Prerequisite: BIOL 202. Occasionally.

BIOL 240 Animal Behavior 3.0; 3 cr.
A course that covers the basic concepts of animal behavior including physiological, genetic, ecological, and evolutionary aspects, as well as exploration of the controversial ideas of sociobiology. Annually.

BIOL 241 Biology of Invertebrates 3.3; 4 cr.
A study of invertebrates, excluding insects, emphasizing their morphological and functional diversity, phylogenetic relationships, classification, development, and adaptation. Prerequisite: BIOL 202. Annually.

BIOL 243 Behavioral Neuroscience 3.0; 3 cr.
An introduction to the neural basis of behavior. The course surveys the structure and organization of the human brain and how complex behavior arises from it. Prerequisite: PSYC 101 or PSYC 201. Annually.

BIOL 244 Introduction to Neurobiology 3.0; 3 cr.
A comprehensive introduction to neural signaling, brain development and adult brain regeneration. The course covers molecular to higher organizational level of neural functions. It emphasizes the fundamental principles and mechanisms associated with brain development and physiology including nerve communication, neurogenesis, patterning and regionalization as well as neural stem cells function. Prerequisite: BIOL 202. Annually.

BIOL 244L Neurobiology Lab 0.3; 1 cr.
The course will introduce the students to basic concepts of neurobiology including brain and cranial nerve anatomy, brain development, adult brain derivatives, spinal cord reflex, receptor and action potentials, nerve degeneration and special senses. The students will learn to perform a combination of manipulations ranging from live brain dissections to histological staining and analyses and will use plastic models and computer simulation. Animal models studied include sheep, chicken, frog and mouse. Pre/corequisite: BIOL 244. Annually.

BIOL 245 Environmental Physiology of Aquatic Organisms 3.0; 3 cr.
A course that describes the strategies used by aquatic animals to deal with environmental variations. The course covers various animal physiological systems with an emphasis on aquatic adaptations. Some topics such as air bladder control, electrical generation and reception, and gill excretion which are specific to aquatic organisms are introduced herein. Prerequisite: BIOL 200 or BIOL 202. Annually.

BIOL 246 Marine Biology 3.3; 4 cr.
A course that introduces the biology of life in the marine environment (microbial world, seaweeds and plants, marine animals) as well as the structure and function of the marine ecosystem (e.g., coral reefs, ocean depths, estuaries). The course also covers the impact of humans on the marine environment. Prerequisite: BIOL 202. Every term.

BIOL 247 Animal Physiology 3.0; 3 cr.
A study of the fundamental principles and mechanisms that govern body functions in animals, with an emphasis on the molecular aspects. Prerequisite: BIOL 202. Annually.

BIOL 248 Cardiovascular Biology 3.0; 3 cr.
This course offers a conceptual overview of the cardiovascular system, focusing on the structure and function of the heart, blood vessels, and microcirculation. Emphasis is placed on the fundamental mechanisms of cardiac physiology, blood flow, and vascular regulation, as well as the biological basis of common cardiovascular conditions and their relevance to health and disease prevention. Prerequisite: Senior Standing. Formerly: BIOL 290AO.

BIOL 249 Parasitology 3.3; 4 cr.
A general overview of the classification, morphology, development, and physiology of human and animal parasites. Prerequisite: BIOL 202. Annually.

BIOL 250 Biosphere 3.0; 3 cr.
A course that focuses on defining global environmental problems such as global warming, acid rain, deforestation, and loss of biodiversity, and introduces methods that can help eliminate or reduce these problems. Annually.

BIOL 251 Introduction to Bioinformatics 3.0; 3 cr.
An introduction to the foundations of modern bioinformatics. The course covers databases, data formats, algorithms, and statistical concepts for analyzing biological data with special emphasis on sequence and gene expression data. Annually.

BIOL 251L Bioinformatics Lab 0.3; 1 cr.
A bioinformatics computer lab. The lab section introduces the programming language R, the de-facto standard in biological data analysis. Students learn how to use R packages, write scripts, and write functions to analyze sequence, genomics, and gene expression data. No prior programming experience is required. Annually.

BIOL 252 Ecology 3.3; 4 cr.
A study of organisms in relation to their biotic and abiotic environment. This course deals with population growth and regulation, species diversity, age structure, succession, food chains, energy flow, and recycling of nutrients. Prerequisite: BIOL 202 or LDEM 209. Every term.

BIOL 253 Phylogenetics 3.0; 3 cr.
A course that introduces the concept of phylogenetic trees, presents different techniques to estimate them, and shows how phylogenetic trees form the basis for understanding a wide range of phenomena in biology, such as ecological adaptation, disease spread or tumor evolution. Prerequisite: BIOL 202. Annually.

BIOL 254 Evolution 3.0; 3 cr.
A study of the processes that bring about evolutionary changes in organisms, evolutionary trends, patterns of adaptations, and principal factors that influence the patterns of speciation. Prerequisite: BIOL 201. Annually.

BIOL 255 Marine Ecology 3.0; 3 cr.
An introduction to the ecology of marine and brackish water ecosystems, structures and processes, with special attention to the eastern Mediterranean Sea. Interrelationships among animals, plants, and chemical and physical aspects of the environment are studied, as well as the unique adaptations for survival in these habitats. Prerequisite: BIOL 200 or BIOL 202. Occasionally.

BIOL 256 Conservation Biology 3.0; 3 cr.
A course that deals with various environmental issues in the world today; introduces the science of conservation; and describes typical methods of conservation. Students are trained in reading scientific literature and scientific writing, and are required to research a conservation topic. Prerequisite: BIOL 200 or BIOL 202. Annually.

BIOL 257 Ecology and Evolution 3.0; 3 cr.
An introduction to the basic principles, concepts and processes in ecology and evolution with a brief history of life on Earth and the relationships of these principles and concepts to current environmental issues such as pollution, climate change and biodiversity and its conservation. Animal behavior will be approached from the ecological and evolutionary perspectives. Students who have taken BIOL 252 or BIOL 254 cannot get credit for BIOL 257. Occasionally.

BIOL 258 Introduction to Aquaculture 3.0; 3 cr.
An introduction to the general concepts of aquaculture. The course discusses topics such as culture species, culture methods, water quality, filtration, feeding, and harvesting. It also introduces uses of aquaculture for food production, biomedical research, ornamentals, or restocking programs. Pre/corequisite: BIOL 200 or BIOL 202. Occasionally.

BIOL 258L Aquaculture Laboratory 0.3; 1 cr.
This is an intensive writing course that introduces students to the practical side of aquaculture. Students will get their hands wet. They will set up fish maintenance systems, evaluate progressive changes in water chemistry, evaluate effects of water chemistry on fish health, and most importantly learn techniques used to maintain fish in healthy and sustainable environments. Students will be expected to keep a detailed log of their activities and perform a full-fledged research project that is expected to be written as a scientific publication. Pre/corequisite: BIOL 258. Annually.

BIOL 259 Microbes and the Environment 3.0; 3 cr.
A course that explores the various habitats of micro-organisms in nature and the interactions within. The course discusses microbial metabolic activities and their impact on the environment. It explores the role of microbes as pathogens, particularly environmentally transmitted ones. The course also discusses the beneficial role of microbes in the biodegradation of pollutants, in addition to public health topics in microbiology. The course includes a substantial component of reading and analysis of primary research papers in environmental microbiology, in addition to presenting a poster session. Prerequisite: BIOL 202. Occasionally.

BIOL 260 Cell Biology 3.3; 4 cr.
A course that provides an understanding of the structure and function of cellular organelles and components, and the functional interaction of the cell with its microenvironment. Prerequisite: BIOL 223. Every term.

BIOL 261 Biology of Cancer 3.0; 3 cr.
This course compares the basic biology of normal versus the malignant neoplastic state and provides a comprehensive overview of the basic biology of cancer. Prerequisite: BIOL 223. Annually.

BIOL 262 Virology 3.0; 3 cr.
A general overview on the classification, biophysical, and biochemical characteristics of DNA- and RNA-containing bacterial, plant, and animal viruses. Prerequisite: BIOL 202. Occasionally.

BIOL 263 Immunology 3.0; 3 cr.
An introduction to basic immunology, types of immune responses, and basic aspects of the specific and non-specific body defense mechanisms, as well as primary immunological diseases and disorders. Prerequisite: BIOL 202. Annually.

BIOL 266 Oceanography 3.0; 3 cr.
An introduction to the basic concepts of oceanography and marine science. The course focuses on the chemical, physical, and geological processes that affect life in the oceans and on planet earth in general. The course discusses additional topics such as environmental science, conservation, world fisheries, marine resources, and effects of coastal development on life in the oceans. Annually.

BIOL 266L Oceanography Lab 0.3; 1 cr.
This is an intensive writing course that introduces students to the basic concepts of marine science applications. It introduces methods to study chemical, physical, biological and geological processes that affect life in the oceans and on planet earth in general. Methods of research used by oceanographers past and present are introduced and demonstrated. Students will be expected to keep a detailed log of their activities and perform a full-fledged research project that is expected to be written as a scientific publication. Annually.

BIOL 268 Introduction to Biotechnology 3.0; 3 cr.
An introduction of both the principles and the applications of molecular biology methods with an emphasis on the application of recombinant DNA technology to animals, plants, and microbial organisms. This course describes the use of genetically engineered products to solve environmental problems and cure human diseases. Annually.

BIOL 270 Plant Physiology 3.3; 4 cr.
A study of the vital processes that occur in flowering plants, including biophysical and metabolic processes, with emphasis on photosynthesis, growth, and development. This course also deals with plant responses to the physical environment. Prerequisite: BIOL 220. Every term.

BIOL 273 Economic Plants 3.0; 3 cr.
The course consists of the study of the relationship between people and plants. It encompasses the fields of botany, systematic, evolution, anatomy and anthropology. It explores the countless ways humans employ plants for food, medicine, textiles, shelter and more. Prerequisite: BIOL 202. Every term.

BIOL 280 Endocrinology 3.0; 3 cr.
A study of the role of chemical messengers in the control of physiological and metabolic processes. This course deals with the biosynthesis, chemistry, and secretion of hormones, as well as their mechanism of action. Prerequisite: BIOL 202. Occasionally.

BIOL 281 Ichthyology 3.0; 3 cr.
A study of the different types of fish, their natural history, and environmental and ecological adaptations. It also deals with methods of conserving and culturing fish of economic value, as well as the effect of pollution on fish fauna. Prerequisite: BIOL 202. Annually.

BIOL 283 Reproductive Physiology 3.0; 3 cr.
An examination of the mechanisms of all major aspects of male and female mammalian reproductive physiology. Emphasis is also given to species variation with regard to reproductive function and to a detailed examination of key reproductive events in both sexes. Prerequisite: BIOL 202. Occasionally.

BIOL 284 Developmental Biology 3.3; 4 cr.
A study of basic mechanisms and molecular basis that controls embryonic development in both vertebrates and invertebrates with special emphasis on early development and axis formation. Animal models covered include chicken, frog, mouse, drosophila, sea urchin, C. elegans and zebrafish. Prerequisite: BIOL 202. Annually.

BIOL 286 Entomology 3.3; 4 cr.
An introduction to the study of insects, their diversity, classification, morphology, biology, and behavior as well as their medical, ecological, and agricultural importance. Prerequisite: BIOL 202. Annually.

BIOL 290 Special Topics in Biology 1.0-4.0; 1-4 cr.
The course covers topics in biology that warrant an extensive coverage in a separate course not typically offered by the department. May be repeated for credit. Every term.

BIOL 291 Undergraduate Tutorial 2 cr.
Prerequisites: Senior standing, a minimum GPA of 3.2 in the major, and consent of instructor. Graded Pass/ No Pass (or Fail). Every term.

BIOL 292 Undergraduate Tutorial 3 cr.
Prerequisites: Senior standing, a minimum GPA of 3.2 in the major, and consent of instructor. Graded Pass/ No Pass (or Fail). Every term.

BIOL 293 Undergraduate Seminar 1.0; 1 cr.
Prerequisite: Senior standing. Every term.

BIOL 295 Summer Undergraduate Research 3.3; 4 cr.
A course intended to train and recruit well-prepared students for graduate work in biology at AUB. Students will conduct a research project during the summer term, and then present and defend their findings. Prerequisites: Completion of 80/120 credits, a minimum GPA of 2.7 in the major, consent of instructor and approval of the department. Every summer.

BIOL 296 Exit Survey 0 cr.
A computer-based exit exam taken in the last term in the BS in Biology program. Prerequisite: Completion of graduation requirements for BS in biology by the end of term. Graded Pass/ No Pass (or Fail). Every spring.

37 Credits in Biology

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (6)	Understanding the World (37 + 15), Quantitative Reasoning (3)	Community Engaged Learning
Lecture courses (9+12+6+30+12+3)	Required Arabic course (3) Required English courses: ENGL 203 (3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Required (6)	Required biology (23): BIOL 201(4), 202(4), 223(4), 220(3), and two from the following four courses: 224(4), 260(4), 270(4), 252(4) Elective biology (12+1 lab): a total of 13 credits, including a minimum of one 4-credit course Required chemistry (9): CHEM 201(3), 211(3), 212(3) Required physics (3): PHYS 204 or PHYS 205 Required: STAT 210 (3) or STAT 231 (3)	Required (3)
Seminar (1)				Required: BIOL 293(1)	
Laboratory (5+1+2+1)				Required biology (5): BIOL 201(4), 202(4), 223(4), and two from the following four courses: BIOL 224(4), 252(4), 260(4), 270(4) Elective biology (1) 1: minimum of one 4-credit course Required chemistry (2): CHEM 210(2) Required physics (1): PHYS 204L (1) or 205L (1)	
Research Project (0, 2, or 3)				Elective biology courses (2–3): BIOL 291(2 or 3)	
Exit Survey (0)				Required: BIOL 296 (0)	

1. Plus 8 free elective credits (MATH 203 and MATH 204 cannot be taken for credit by biology majors).
2. At least 37 credits in biology and 15 credits in the sciences.
3. These courses include a 1-credit laboratory component and have been listed under both lecture and laboratory courses.

Department of Chemistry

Chairperson	El Rassy, Houssam
Professors	Bouhadir, Kamal; El Rassy, Houssam; Ghaddar, Tarek; Ghauch, Antoine; Ghoul, Mazen; Halaoui, Lara; Hasanayn, Faraj; Kaafarani, Bilal; Patra, Digambara; Sultan, Rabih
Associate Professors	Hmadeh, Mohamad; Karam, Pierre
Assistant Professor	Iali, Wissam
Research Associate	Hamze, Khalil
Instructors	Abi Rafi', Randa; Abou Matar, Tamara; Bou Karroum, Weam; Chapoutian, Nayiri; Cheaytou, Mariane; Deeb, Hana; El Kurdi, Riham; Ghazali, Sarah; Hannouche, Karen; Jaafar, Amer; Mouawad, Issaaf; Obeid, Hind; Sadek, Samar; Sarieddine, Haitham

BS in Chemistry

Mission Statement

The Chemistry Department provides liberal arts and professional education in chemistry. The undergraduate program at the department is dedicated to teaching, scholarship, research and creative endeavors. Through this program, the department delivers a strong theoretical course of study and practical training in the chemical sciences to ensure the success of its students in graduate schools, professional schools and employment. Undergraduate students are able to explain the essential facts, principles and theories across the four major areas of chemistry, i.e. analytical, organic, inorganic and physical. In addition, they are strongly encouraged to be engaged in research in these aforementioned areas. The program also plays a central role in the education of students of other majors, including students of medicine, health sciences, engineering, and agriculture. Students accepted as chemistry majors must maintain a GPA of 2.3 or above in their first three terms in major courses in order to remain in the program. Students must complete the following minimum requirements: CHEM 201, CHEM 201L, CHEM 211, CHEM 212, CHEM 215, CHEM 216, CHEM 217, CHEM 218, CHEM 220, CHEM 225, CHEM 228, CHEM 229, and CHEM 230, at least two elective courses of the following six courses: CHEM 231, CHEM 232, CHEM 233, CHEM 234, CHEM 235 and BIOL 220, in addition to MATH 201, MATH 202, and CMPS 201 or CMPS 203 or CMPS 209, PHYS 211 and PHYS 211L, 6 credits in the Societies and Individuals, and 12 credits in the Cultures and Histories. It is highly recommended that chemistry majors complete MATH 201 and MATH 202 before taking CHEM 217 and CHEM 218.

The 90-credit requirement for a BS degree in chemistry is distributed as follows:

Degree Requirements

- Major Courses: 40 credits in chemistry courses (33 credits as required courses, 6 credits as elective courses, and 1 credit as a required seminar course).
- Courses from outside the department: 6 credits of math and 1 credit of physics.
- Understanding the World courses: 3 credits of physics.
- Quantitative Reasoning courses: 3 credits of CMPS.
- University General Education requirements that include 6 credits in Understanding Communication - English, 3 credits in Understanding Communication - Arabic, 9 credits in Cultures and Histories, 3 credits in Community-engaged Learning, 3 credits in Human Values, and 6 credits in Societies and Individuals. At least one of the courses from Cultures and Histories or Human Values should be from the History of ideas: CHLA.
- Elective Courses: 7 credits in free electives.
- At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Freshman students who intend to major in chemistry should complete the following minimum requirements: CHEM 101, CHEM 101L, CHEM 102, CHEM 102L, MATH 101 and MATH 102, PHYS 101 and PHYS 101L.

Students who intend to minor in chemistry should complete the following requirements:

- CHEM 201, one lab course from the following list (CHEM 201L, CHEM 203, CHEM 207, CHEM 209 or CHEM 210) and a minimum of 12 credits from courses selected from at least three of the below four chemistry divisions:
  - Analytical: CHEM 215, CHEM 219, CHEM 234
  - Inorganic: CHEM 228, CHEM 229
  - Organic: CHEM 207, CHEM 208, CHEM 211, CHEM 212
  - Physical: CHEM 217, CHEM 218, PHYS 212, [CHEM 204 and CHEN 214/MECH 310]
- Typical choice of minors for different majors:
  - Biology: CHEM 201, CHEM 201L/210, CHEM 211, CHEM 212, CHEM 215, CHEM 228 (16/17 credits)
  - Physics: CHEM 201, CHEM 201L/209/210, PHYS 212, CHEM 215/217, CHEM 208/211/212/228 (16/17 credits)
  - Earth Sciences: CHEM 201, CHEM 201L/209, CHEM 208, CHEM 215, CHEM 228, CHEM 229 (16/17 credits)
  - Chemical Engineering: CHEM 201, CHEM 207, CHEM 219, CHEM 204 and CHEN214/MECH 310, CHEM 215/ 218/ 228 (18 credits)
- For premedical chemistry students matriculated as of Fall 2024, the core premedical chemistry courses are: CHEM 101 + CHEM 101L (or equivalent), CHEM 201, CHEM 211, CHEM 212, and CHEM 225.
- For premedical biology students matriculated as of Fall 2024, the core premedical chemistry courses are: CHEM 101 + CHEM 101L (or equivalent), CHEM 201, CHEM 210, CHEM 211, and CHEM 212.
- For non-chemistry and non-biology students matriculated as of Fall 2024, the core premedical chemistry courses can be: CHEM 101 + CHEM 101L (or equivalent), CHEM 201, CHEM 208, and CHEM 209.

Course Descriptions

CHEM 101 General Chemistry I 3.0; 3 cr.
An introductory course that covers atomic structure, chemical reactions, stoichiometry, gas laws, thermochemistry, periodic relationships among the elements, chemical bonding, and other basic concepts. Every term.

CHEM 101L General Chemistry Laboratory I 1.3; 1 cr.
A laboratory course to accompany CHEM 101. The experiments explore some of the fundamental concepts which deal with measurements, percent composition, chemical reactions, stoichiometry, volumetric analysis, gas laws, and calorimetry. Pre/corequisite CHEM 101. Every term.

CHEM 102 General Chemistry II 3.0; 3 cr.
A course that covers solutions, chemical equilibrium, kinetics, acid-base and solubility equilibria, introductory thermodynamics and electrochemistry; surveys common groups in the periodic table; provides an introduction to organic chemistry and nuclear chemistry. Prerequisite: CHEM 101. Every term.

CHEM 102L General Chemistry Laboratory II 1.3; 1 cr.
A laboratory course to accompany CHEM 102. The experiments explore some of the fundamental concepts which deal with physical properties of solutions, chemical equilibrium, acids and bases, solubility equilibria, kinetics and electrochemistry. Prerequisite: CHEM 101L. Pre/corequisite: CHEM 102. Every term.

CHEM 200 Basic Chemistry and Applications 3.0; 3 cr.
Introduces basic chemical principles and concepts and uses them to discuss selected contemporary applications and problems from the areas of materials, environmental, medicinal or biological chemistry. Introductory topics include the electronic structure of the atom, bonding and molecular geometry, stoichiometry, and reaction energies. Selection of modern applications in Chemistry. Students cannot receive credit for both CHEM 200 and CHEM 201. Every term.

CHEM 201 Chemical Principles 3.1; 3 cr.
A theoretical introduction to chemical principles, stressing atomic structure, bonding, stoichiometry, gases, solutions, acids and bases, solution equilibria. Students cannot receive credit for both CHEM 200 and CHEM 201. Prerequisite: CHEM 101 and CHEM 101L or its equivalent. Every term.

CHEM 201L Introduction to Chemical Analysis Laboratory 1.3; 1 cr.
Introduces students to chemical analysis in a series of preparatory laboratory experiments. Students acquire knowledge in handling basic tools and equipment, conduct wet chemistry experiments and quantify aqueous solutes using simple laboratory devices. Students can receive credit for only one of CHEM 201L, CHEM 209, CHEM 210. Pre/corequisite: CHEM 201. Every term.

CHEM 202 Introduction to Environmental Chemistry 3.0; 3 cr.
This course explores the chemistry of the Earth's atmosphere and hydrosphere. Topics include the chemical mechanisms behind ozone depletion, photochemical smog, acid rain, air quality index, and global climate change. The course also examines chemical and physical processes in natural waters, focusing on the behavior and distribution of acids and metals, gas solubility and its influence on alkalinity, as well as issues related to water pollution and treatment techniques. Prerequisites: CHEM 101 and CHEM 101L or equivalent. Every term.

CHEM 203 Introductory Chemical Techniques 1.3; 2 cr.
A laboratory course on the methods of quantitative analysis, physical chemistry measurements, and inorganic semi-micro qualitative analysis, with applications to environmental problems. Not open to chemistry majors. Pre/corequisite: CHEM 200, CHEM 201, or CHEM 202. Annually.

CHEM 204 Physical Chemistry for Chemical Engineers 2.0; 2 cr.
An introduction to the basic principles of chemical kinetics, surface phenomena and colloids: reaction rates and mechanism; theories of reaction rates; catalysis; photochemistry; colloids; adsorption on surfaces; surface analytical techniques. Not open to chemistry major. Prerequisites: CHEM 102 and CHEM 102L. Every summer.

CHEM 205 Introductory Chemistry Laboratory 1.4; 2 cr.
A laboratory course on the methods of quantitative analysis, physical chemistry measurements, and inorganic semi-micro qualitative analysis. Not open to chemistry majors. Pre/corequisites: CHEM 200, CHEM 201, or CHEM 202. Every term.

CHEM 206 Quantitative Analysis 3.4; 4 cr.
A course that covers gravimetric and volumetric techniques; acid/base, complex formation, and redox titrations; electrochemistry and an introduction to chromatography and spectrophotometric analysis. This course is designed for biology majors. Not open to chemistry majors. Students cannot receive credit for both CHEM 206 and CHEM 215-216. Prerequisite: CHEM 201. Occasionally.

CHEM 207 Survey of Organic Chemistry and Petrochemicals 3.3; 4 cr.
A survey of organic chemistry which mainly covers properties and reactions of aliphatic and aromatic hydrocarbons, functional groups, including alkyl halides, alcohols and ethers, aldehydes and ketones, carboxylic acids and derivatives. This course surveys polymers, petrochemicals and their general use in industry. The laboratory component covers the basic organic lab skills such as recrystallization, distillation, extraction, chromatography and some synthesis experiments. Designed for chemical engineering students. Students cannot receive credits for both CHEM 208 and CHEM 207; CHEM 211 and CHEM 207. Prerequisite: CHEM 102 or equivalent. Annually.

CHEM 208 Brief Survey of Organic Chemistry 3.0; 3 cr.
A brief survey of organic chemistry that covers the following topics: hydrocarbons, stereoisomerism, organo halogens, oxygen containing groups, carbonyl groups, carboxylic acids and their derivatives, amines, carbohydrates, and amino-acids. Students cannot receive credit for both CHEM 208 and CHEM 211. Prerequisites: CHEM 101 and CHEM 101L; or CHEM 200 or equivalent. Every term.

CHEM 209 Introductory Organic Laboratory 1.3; 2 cr.
A course of basic experiments in organic chemistry, including synthesis and techniques of separation and purification of organic compounds. Students can receive credit for only one of CHEM 201L, CHEM 209, CHEM 210. Pre/corequisite: CHEM 208. Every term.

CHEM 210 Organic Laboratory for Non-Majors 1.4; 2 cr.
Basic experimental techniques in organic analytical chemistry (melting and boiling point, chromatography, distillation, extraction, recrystallization), performing reactions in synthetic organic chemistry. Students can receive credit for only one of CHEM 201L, CHEM 209, CHEM 210. Pre/corequisite: CHEM 212. Every term.

CHEM 211 Organic Chemistry I 3.0; 3 cr.
An introduction to organic chemistry organized according to functional groups. This course covers synthesis, properties, and reactions of aliphatic and aromatic hydrocarbons and alkyl halides, with emphasis on mechanistic and stereochemical aspects of organic reactions. Designed for chemistry majors and premedical study. Students cannot receive credit for both CHEM 208 and CHEM 211. Prerequisite: CHEM 201. Every term.

CHEM 212 Organic Chemistry II 3.0; 3 cr.
A course that covers synthesis, properties, and reactions of organic functional groups, including alcohols and ethers, aldehydes and ketones, carboxylic acids and derivatives, amines, phenols, and aryl halides; chemistry of difunctional compounds and of molecules of biological importance, including carbohydrates, proteins, and nucleic acids; and organic structure determination by spectroscopic methods. Emphasis is placed on reaction mechanism and stereochemistry, as well as on the design of multi-step syntheses. Designed for chemistry majors and premedical study. Prerequisite: CHEM 211. Every term.

CHEM 215 Analytical Chemistry 3.0; 3 cr.
A course that covers fundamental analytical processes, including solution equilibria, titrations, electrochemical theory and applications, chromatography and spectrophotometric techniques. Students cannot receive credit for both CHEM 215 and CHEM 206. Prerequisite: CHEM 201. Every term.

CHEM 216 Analytical Chemistry Laboratory 1.4; 2 cr.
Experimental work in related areas of chemical analysis and instrumentation including: complexometric analysis; ion-selective electrodes; spectrophotometric analysis; molecular spectroscopy; atomic spectroscopy; liquid chromatography; ion chromatography, gas chromatography, calibration methods (standard addition method and internal standard method), data analysis using statistical methods with uncertainty determination, multicomponent analysis. Prerequisite: CHEM 201L. Pre/corequisite: CHEM 215. Every term.

CHEM 217 Thermodynamics and Chemical Dynamics 3.0; 3 cr.
A course that covers the basic principles of chemical thermodynamics and chemical dynamics; mathematical machinery of the laws of thermodynamics; heat, work and energy; first, second and third laws of thermodynamics; thermodynamics of chemical reactions, phase transformations and phase equilibria; thermodynamics of solutions; transport properties: diffusion, viscosity, ion transport, thermal conductivity; chemical kinetics and reaction mechanisms. Prerequisite: CHEM 201. Pre/corequisite: MATH 202. Annually.

CHEM 218 Quantum Chemistry 3.0; 3 cr.
A course that covers failures of classical physics, quantum theory, Schrödinger equation, particle in a box, harmonic oscillator, rotational motion, hydrogen atom, atomic orbitals, spin, Pauli exclusion principle, complex atoms, term symbols, molecular structure, hybridization, Hückel theory, rotation, vibration, and electronic spectra. Students cannot receive credit for both PHYS 212 and CHEM 218. Prerequisite: CHEM 201. Pre/corequisite: MATH 202. Annually.

CHEM 219 Analytical and Instrumental Chemistry for Chemical Engineers 3.0; 3 cr.
An introduction to chemical measurements and modern instrumental methods of chemical analysis: sample preparation; error analysis; chemical separations; chromatographic; spectroscopic; electrochemical, and surface analysis techniques. Not open to chemistry major. Prerequisites: CHEM 102 and CHEM 102L. Annually.

CHEM 220 Physical Chemistry Laboratory 1.6; 3 cr.
Experiments in thermodynamics, kinetics, electrochemistry, spectroscopy, and exercise in computational chemistry. Prerequisites: CHEM 201L and CHEM 217. Pre/corequisite: CHEM 218. Annually.

CHEM 225 Organic Structure Determination 1.6; 3 cr.
Experiments in the techniques of purification, separation, and synthesis of derivatives of organic compounds; theory and practice in the analysis of organic compounds by infrared, ultraviolet-visible spectrophotometry, mass spectrometry, and nuclear magnetic resonance; identification of pure compounds and of components of mixtures of organic compounds by chemical and spectral methods. Prerequisites: CHEM 201L and CHEM 212. Annually.

CHEM 228 Inorganic Chemistry 3.0; 3 cr.
A course that covers atomic structure, molecular structure (VBT, MOT), molecular shape (VSEPR), symmetry and group theory, the structure of solids (metals, ionic), acids and bases (Brønsted, Lewis, HSAB, solvents). Prerequisite: CHEM 201. Annually.

CHEM 229 Coordination Compounds 3.0; 3 cr.
A course that covers d-metal complexes (structures and symmetries, bonding and electronic structure, reactions of complexes); electronic spectra of complexes; reaction mechanisms of d-block complexes (ligand substitution reactions in square-planar and octahedral complexes, redox reactions, photochemical reactions). Prerequisite: CHEM 228. Annually.

CHEM 230 Senior Seminar 1.0; 1 cr.
A literature search of a specific topic in chemistry. A written report and oral presentation in a seminar form. Prerequisite: Senior standing. Every term.

CHEM 231 Organic Synthesis 1.4; 3 cr.
Experiments in multistep synthesis of organic compounds, with an emphasis on methods used for synthesis and isolation, and characterization of intermediates and products. Prerequisite: CHEM 201L. Pre/corequisite: CHEM 212. Annually.

CHEM 232 Inorganic Synthesis 1.4; 3 cr.
Experiments in synthesis, separation, purification, and characterization of inorganic main group and transition metal compounds by IR, UV-Vis, NMR, and ESR spectroscopy. Prerequisite: CHEM 201L. Pre/corequisite: CHEM 229. Annually.

CHEM 233 Topics in Physical Chemistry 3.0; 3 cr.
A course that covers a selection of topics in thermodynamics, advanced kinetics, and techniques in physical analysis; thermodynamics of phase transformation; theoretical and experimental aspects of rates of reactions; rate laws of complex reactions, catalysis, adsorption isotherms, spectroscopic techniques (e.g., laser spectroscopy, NMR, EPR); surface analysis and imaging techniques; X-ray crystallography. Prerequisite: CHEM 217. Pre/corequisite: CHEM 218. Annually.

CHEM 234 Instrumental Analytical Chemistry 3.0; 3 cr.
A course that provides students with a solid knowledge in the chemistry of separation and identification. It introduces chemistry students to many analytical techniques and instruments that are widely used in different laboratories in the fields of chemistry, chemical engineering, environmental health, biochemistry, forensic science, toxicology, industrial hygiene, medicine, pharmacology, pharmacy, geology, agriculture, and other industrial applications. It includes chemometry and detailed description of sample preparation techniques; electroanalytical techniques (potentiometry, electrogravimetry, coulometry and voltammetry); spectroscopic methods (components of optical instruments, optical atomic spectrometry, atomic absorption and atomic fluorescence spectrometry, atomic emission spectrometry, molecular luminescence spectrometry); separation methods (liquid, gas, supercritical-fluid, chiral and capillary electrophoresis chromatography) and related hyphenated (coupled) techniques (GC/ MS, HPLC/APCI-APPI-ESI/MS). Prerequisite: CHEM 215. Pre/corequisite: CHEM 216. Annually.

CHEM 235 Organic Chemistry III 3.0; 3 cr.
A course that covers advanced organic synthesis, properties, and reactions of organic functional groups, including carbohydrates, lipids, amino acids, peptides, and polymers in addition to introduction to molecular orbital theory and its application in electrocyclic reactions. Prerequisite: CHEM 212.

CHEM 295 Special Topics in Chemistry 3.0; 3 cr.
Prerequisite: Senior standing in Chemistry. Alternate years.

CHEM 299 Independent Study 3.0; 3 cr.
Independent chemical research carried out under the direction of a faculty member, including presentation of the results in the form of a senior thesis. Offered to senior students in good standing, by arrangement with the project director. Every term.

34 + 6 Credits in Chemistry

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (6)	Understanding the World (44-47), Quantitative Reasoning (3)	Community-Engaged Learning (3)
Lecture Courses (9+12+6+ 47+9+3)	Required Arabic course (3) Required English courses: ENGL 203 (3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Required (6)	Core: CHEM 201(3), 211(3), 212(3), 215(3), 217(3), 218(3), 228(3), 229(3) Electives: CHEM 233(3), CHEM 234(3), CHEM 235(3), BIOL 220(3) Science courses (12): PHYS 211(3), MATH 201(3), MATH 202(3), CMPS 201 or 203 or 209(3)	Required course (3)
Seminar (1)				CHEM 230(1)	
Laboratory (13–19)				Computer Science (3): CMPS 201 or 203 or 209(3) Chemistry courses (9–15) Core: CHEM 201L (1), CHEM 216(2), 220(3), 225(3) Electives2: CHEM 231(3), 232(3) Science courses (1): PHYS 211L	
Research Project (0 or 3)				CHEM 299(3)	

Critical Humanities for the Liberal Arts (CHLA)

Director	Bou Ali, Nadia
Professor	Jarrar, Maher Z.
Associate Professors	Bou Ali, Nadia; Goodfield, Eric
Assistant Professors	Gonzalez, Maya Andrea; Middlemiss Sanazaro, Marie Claire
Senior Lecturer	Harb, Sirene
Lecturers	Ekmekji, Arda; El Amm, Charbel; Hassan, Hani R.
Instructor	Arasoghli, Aida A.

The Critical Humanities for the Liberal Arts Program (CHLA) at the American University of Beirut is a unique, interdisciplinary space for critical inquiry into ideas that inform civilization.

Mission Statement

The mission of CHLA is to provide undergraduate courses in the humanities that support the American University of Beirut's goals in general education and the advancement of knowledge. CHLA is committed to engaging students from all the faculties of the university in the study of the liberal arts. The program is interdisciplinary in nature. Its mission is to study the history of ideas; introduce students to primary texts; develop critical thought in the humanities; instill an awareness of global and contemporary concerns and foster humanistic knowledge.

Requirements

According to the general education requirements at AUB, all students are required to take a total of 9 credits in the Cultures and Histories and 3 credits in Human Values.

A minimum of 3 credits of those 12 must be taken from CHLA courses. Students can choose a course that is most compatible with their area of specialization and interests.

All CHLA courses are included among the general education courses, all courses fulfill the designation 'Cultures and Histories'. In addition to fulfilling the 'Cultures and Histories' GE designation, CHLA 210 fulfills the 'Social Inequalities' designation, and CHLA 214 fulfills the 'Human Values' designation.

The following CHLA courses are not included among the General Education Cultures and Histories courses: FREN 201, FREN 202, GERM 201, GERM 202, CHIN 201, CHIN 202, CHIN 203.

Restrictions

- CHLA 205 overlaps with 201 and 202. Thus, CHLA 205 cannot be taken if students have taken either 201 or 202, and vice versa.
- CHLA 206 overlaps with 203 and 204. Thus, CHLA 206 cannot be taken if students have taken either 203 or 204, and vice versa.

Prerequisites

- ENGL 203 is a pre/corequisite for all CHLA courses numbered 200 and above

Minor in Critical Humanities

A minor in critical humanities requires 15 credits: CHLA 204 or CHLA 206, CHLA 209, and three courses chosen from CHLA 210-214

Minor in Medical Humanities

A minor in medical humanities requires 15 credits: CHLA 211A, CHLA 215, and three courses that correspond to the theme of health and sickness, and social inequalities (with a focus on race, class, or gender). These courses can be chosen from CHLA 210, CHLA 212, CHLA 213, CHLA 214B, EDUC 225, EDUC 237, EDUC 238, ENGL 234, ENGL 244R, MCOM 247, PHIL 205, PHIL 210, PHIL 222, PSYC 232, SOAN 217. No more than 6 credits may be used to satisfy the requirements for another major or minor.

Course Descriptions

CHLA 201 Ancient Near East and Classical Civilizations 3.0; 3 cr.
An introduction to fundamental elements of Ancient Mesopotamian, Greek, and Roman world views that continue to influence us today. Starting with the Epic of Gilgamesh, the course moves on to explore the Greek and Roman worlds through epic, drama, history, and philosophy, in some of the most influential texts from that period of human history. CHLA 201 cannot be taken if students have taken CHLA 205. Every term. Previously CVSP 201.

CHLA 202 Medieval, Islamic, and Renaissance Civilizations 3.0; 3 cr.
An introduction to fundamental elements of late Classical, Medieval, Islamic, and Renaissance worldviews that continue to influence us today. This course focuses particularly on Christian and Islamic thought as presented in texts such as those of Augustine, Al Ghazali, Ibn Tufayl, Ibn Rushd, Aquinas, Dante, Ibn Khaldun, and Luther. Selected texts from the Renaissance period round off the course. CHLA 202 cannot be taken if students have taken CHLA 205.Every term. Previously CVSP 202.

CHLA 203 Crossroads of Modern Thought 3.0; 3 cr.
An introduction to fundamental elements of the Enlightenment and Modernity. The course engages texts expressing contrasting views of the same topic paired into thematic blocks: Introduction, The Scientific Revolution, State and Social Contact, Enlightenment and its Critics, Modernity Beyond Enlightenment. CHLA 203 cannot be taken if students have taken CHLA 206. Every term. Previously CVSP 203.

CHLA 204 (A, B, C, D, E…) Contemporary Studies 3.0; 3 cr.
A thematic course that approaches the contemporary world through different theories such as: structuralism, socialist realism, post-structuralism, surrealism, existentialism, psychoanalysis, queer theory, liberalism and neo-liberalism. Students who have previously taken CHLA 204 cannot receive credit for CHLA 204A.

CHLA 205 Ancient, Medieval, and Renaissance Civilizations 3.0; 3 cr.
A composite of CHLA 201 and 202, covering selected works from the periods described above. CHLA 205 cannot be taken if students have taken either CHLA 201 or CHLA 202. Every term. Previously CVSP 205.

CHLA 206 Modern and Contemporary Studies 3.0; 3 cr.
A composite of CHLA 203 and 204, covering selected works from the periods described above. CHLA 206 cannot be taken if students have taken either CHLA 203 or CHLA 204. Occasionally. Previously CVSP 206.

CHLA 209 (A, B, C, D, E…) Theories and Methods 3.0; 3 cr.
This course is an introduction to the fundamental questions studied by the critical humanities. It aims to introduce undergraduates to major critical theories of modernity and the contemporary. The course aims to develop foundational skills for other CHLA courses such as textual interpretation and critical analysis. The course covers the following themes but is not restricted to them: modernity, postmodernity, ideology, fetishism.

CHLA 210 (A, B, C, D, E…) Social Inequalities (gender, race, class) 3.0; 3 cr.
These courses aim to raise students' critical awareness of social inequalities through a tripartite division: gender and sexuality, race, and class. Their aim is to familiarize students with how structures of inequality are produced through discourse and practice in a diverse set of historical contexts. Readings are interdisciplinary, covering but not restricted to the fields of social theory, anthropology, psychoanalysis, philosophy, political economy, the arts, literary studies and political theory amongst others.

CHLA 211 (A, B, C, D, E…) The Normal and the Pathological 3.0; 3 cr.
These courses aim to raise students' critical awareness of the assumed distinctions between health and sickness and the normal and the pathological. This distinction is approached in the following fields of inquiry but not restricted to them: 1) life systems or living organisms and the theory of evolution, where we observe the contingencies underlying adaptation, 2) human sexual health and sickness, where the distinction between normal and pathological does not hold, and 3) rational or reasonable thought, where the relation between madness and reason is explored in a non-relativistic manner.

CHLA 212 (A, B, C, D, E…) Science, Culture, and Society 3.0; 3 cr.
Course aims to raise students' critical awareness of the history of science, its intellectual framework, and the multifaceted impact it has had and continues to have on human life. In these courses students will read and analyze scientific, literary, and philosophical works that explore the ways in which science has changed, or should change, the way we understand ourselves and the world in which we live. The course will offer a historical background as well as engage in themes that are relevant to our contemporary world such as: automation, AI, technological advances in the worldwide web, etc.

CHLA 213 (A, B, C, D, E…) Nature and Society 3.0; 3 cr.
The environment in which we live and how we conceptualize it are integral parts of how we understand ourselves, each other, our projects, and the significance of human life. Courses under this designation aim to raise students' critical awareness of issues related to ecology by examining and comparing primary texts and media from different traditions - ancient, modern, and contemporary – in order to better understand the relationship between our conceptions of nature on the one side, and of human life and values on the other. Courses under this designation will cover one or more of the following divisions: nature in the age of myth, nature and the medieval world, nature and modernity, modern ecology. Under each division, students will read, analyse, and discuss texts or media chosen by the instructor from a list of approved resources.

CHLA 214 Human Values (A, B, C, D, E…) 3.0; 3 cr.
Courses aim to raise students' awareness of issues related to human values by asking questions such as: What is the value of values? What are they good for and why do they often contradict or align with one another? If values form an inevitable and often invisible lens through which we understand ourselves and the world, how can we come to understand them? They will question the structure and purpose of values as responses to conceptual and historical problems such as particularity and universality, the social and the natural, solidarity and individuality, freedom and obligation, tradition and futurity, self and other, or other themes within and between traditions. These courses introduce students to values in a variety of contexts and traditions and make selective use of ethical, literary, psychological, philosophical, scientific, historical, spiritual or other resources.

CHLA 215 Introduction to Medical Humanities 3.0; 3 cr.
This introductory course on medical humanities offers students an interdisciplinary exploration of health, illness, and medicine through the lenses of literature, history, philosophy, anthropology, and the arts. The course aims to bridge the gap between the sciences and the humanities, providing a comprehensive understanding of how cultural, social, and ethical dimensions shape medical practice and patient experiences. Throughout the course, students will examine key themes such as the narrative of illness, the history of medical advancements, and the ethical dilemmas faced by healthcare professionals. By engaging with a variety of texts, including the medical literature, literary works, historical works, philosophical essays, and visual arts, students will develop critical thinking skills and a deeper empathy for the human condition.

CHLA 261 Civilization Through the Arts I 3.0; 3 cr.
An introduction to the appreciation of art. More of a cultural history than an art historical survey, this course aims to provide students with general knowledge about how the understanding of art, artist and beauty/the aesthetic has changed in time and place. Previously CVSP 250.

CHLA 262 Civilization Through the Arts II 3.0; 3 cr.
The course critically examines the terms 'modern' and 'art' and the association of modern art with Western art. It then focuses on non-Western modern art, taking Lebanon as an example. Previously CVSP 251.

CHLA 263 Modern and Contemporary World Theatre 3.0; 3 cr.
This course examines a number of plays from across different artistic, cultural and linguistic traditions. The focus will be on reading and analyzing these plays for an appreciation of aesthetic innovations, modes of theatrical expression, and their place within particular social or cultural contexts. Course materials may include filmed versions of the plays for comparison. Annually. Previously CVSP 212.

CHLA 270 Survey of Nineteenth-Century French Literature in English 3.0; 3 cr.
A survey of the major French poets and novelists of the nineteenth century with selected readings from Hugo, Lamartine, Baudelaire, and Rimbaud to Stendhal, Balzac and Zola. Annually. Previously CVSP 215.

CHLA 271 A Survey of Twentieth-Century French Literature in English 3.0; 3 cr.
A survey of the major French poets and novelists of the twentieth century with an emphasis on the main artistic currents from Proust, Colette, Gide, Sartre, and Camus, to surrealism in poetry and the New Novel by Robe-Grillet, Nathalie Sarraute, and Marguerite Duras. Annually. Previously CVSP 216.

CHLA 272 Modern Russian Literature 3.0; 3 cr.
Russian short stories, novels and plays have had a major impact on world literature. The course offers a close reading of texts from authors such as Gogol, Dostoyevsky, Tolstoy, Chekov, Gorky and Solzhenitsyn that reflect socio-political and psychological changes undergone in Russia from the nineteenth century to our own times. Previously CVSP 217.

CHLA 295 Special Topics in Cultural Studies 3.0; 3 cr.
At the discretion of the program. May be repeated for credit on different topics. Prerequisite: Junior level and above, or consent of instructor.

CHIN 201 Chinese I 3.0; 3 cr.
Every term.

CHIN 202 Chinese II 3.0; 3 cr.
Prerequisite: CHIN 201. Every term.

CHIN 203 Chinese III 3.0; 3 cr.
Prerequisite: CHIN 202.

FREN 201 Elementary French I 3.0; 3 cr.
Every term.

FREN 202 Elementary French II 3.0; 3 cr.
Every term.

FREN 211 Intermediate French 3.0; 3 cr.
Prerequisite: FREN 202.

GERM 201 Elementary German I 3.0; 3 cr.
Elementary German.

GERM 202 Elementary German II 3.0; 3 cr.
Prerequisite: GERM 201.

GERM 211 Intermediate German 3.0; 3 cr.
Prerequisite: GERM 202.

Courses Restricted to Freshman Students

CHLA 110 Gods and Creation: East and West 3.0; 3 cr.
A course that examines different literary understandings of the origins of the universe as found in texts from a variety of world cultures. Annually. Previously CVSP 110.

CHLA 111 Youth and Rebellion in Modern Literature 3.0; 3 cr.
An introduction to the themes and challenges of autonomy and independence as experienced by youth, studied through major literary works of the past centuries. Annually. Previously CVSP 111.

CHLA 112 Contemporary Arab Identity 3.0; 3 cr.
An examination of literary, historical, and socio-political texts that express contemporary Arab self-awareness. Annually. Previously CVSP 112.

Department of Computer Science

Chairperson	Elbassuoni, Shady
Professors	Abu Salem, Fatima; El Hajj, Wassim; Safa, Haidar
Associate Professors	Elbassuoni, Shady; Khabbaz, Maurice
Research Associate	Baydoun, Mohammed H.
Assistant Professors	Abdo Mouawad, Amer; Assaf, Rida; El Hajj, Izzat; Harkous, Hasanin; Mardanbegi, Diako; Sakr, Mohamad
Senior Lecturer	Jureidini, Wadi'
Lecturers	Abdallah, Maher; Kobeissi, Mohamed A.; Kobeissi, Nadim; Lakkis, Sari; Noureddine, Moustafa; Raheel, Saeed; Yasseen, Zahraa; Zalghout, Mohamad
Instructors	Aoude, Loa; El Hajj, Mohamed; Farroukh, Duaa; Fatairi, Nour; Ghannam, Hiyam; Hamandi, Ahmad; Khalil, AlAbbass; Ramlaoui, Hussam; Sobh, Amine

The Department of Computer Science offers a program leading to the degree of bachelor of science (BS) in computer science. It also offers a program leading to the degree of master of science (MS) in computer science. For more information about the department visit: https://www.aub.edu.lb/fas/cs/Pages/default.aspx

Mission Statement

The Department of Computer Science at the American University of Beirut prepares students for advanced studies and professional careers in the dynamically changing world of computing and information technology. Our programs combine the theoretical foundations of computing with the practical knowledge of software development vital to industry, to provide broad and integrated curriculums.

The department offers a bachelor of science (BS) degree in computer science, designed to be completed typically in three years after the freshman year. It also offers a master of science (MS) program designed to provide advanced and specialized education in computing, offered in formats that meet the needs of both working professionals and full-time students.

The department has vigorous research programs in theoretical computer science, systems, machine learning and data science, and software engineering. Our faculty members are committed to contributing to the advancement of the field of computing through scholarly activities, in which our students play a vital role.

BS in Computer Science

The BS program aims at imparting graduates with a solid foundation in computing at both the theoretical and practical levels, thus conferring the ability to design, build, and deploy sophisticated systems using state-of-the-art technologies in a broad array of areas. It also develops an appreciation of the transformative impact that computing has had on a wide variety of disciplines. Students are trained in quantitative reasoning, the use of fundamental principles and ideas (abstraction, modularity, data structures, algorithmics, computability, calculus, and logic) for analysis and problem solving, and disciplined development of modern software systems. The BS program adheres to the Association of Computing Machinery (ACM) standards for knowledge area learning outcomes.

BS/MS in Computer Science

A study plan is presented that allows students to finish the requirements for the BS and MS degrees in four years (including summers) after the freshman year.

Minor in Computer Science

A minor in computer science requires the completion of the following 18 credits: CMPS 201, CMPS 202, CMPS 211 (or MATH 211), CMPS 214, 3 credits from the following: CMPS 215, CMPS 221, CMPS 240, CMPS 241, and CMPS 271, and 3 credits from CMPS courses numbered 214 and above (except CMPS 260 and CMPS 269). [Note: This minor is not open to students from the CSE Program].

Minor in Computational Science

A minor in computational science requires the completion of the following 18 credits: 12 required credits (CMPS 201 or CMPS 203, CMPS 202, MATH/CMPS 251, MATH 281 or CMPS 254), and 6 credits out of the following: MATH 211 (or CMPS 211), DCSN 200, PHYS 222, or a tutorial course in either PHYS 231 or PHYS 232, a course in bioinformatics, or a chemistry course which has computational contents.[Note: This minor is open to computer science students].

Minor in Data Science

A minor in data science requires the completion of the following 18 credits: CMPS 201 or CMPS 203, CMPS 244, CMPS 261, CMPS 262, one of the following (STAT 201, STAT 210, STAT 230, STAT 233, BUSS 200, EDUC 227, ECON 213, or NURS 203), and MATH 218 or MATH 219. [Note: This minor is not open to Computer Science students and students from the CSE Program].

Minor in Software Development and Design

A minor in software development and design requires the completion of the following 18 credits: CMPS 201, CMPS 202, CMPS 244, and CMPS 271, and two of CMPS 270, CMPS 278, CMPS 279, and CMPS 288. [Note: This minor is not open to computer science students and students from the CSE Program].

Minor in Gaming

The gaming minor can be attained by AUB students who fulfill 18 credits which vary depending on the students' majors. Humanities, creative arts, graphic design, and related majors must take the following 3 courses: CMPS 201 or CMPS 203, GRDS 141, CMPS 204. Science, engineering, math, and other STEM majors (including computer science) must take the following 3 courses: CMPS 202, CMPS 285, CMPS 288. All majors must take 2 out of the following courses: ENGL 264, ENGL 297, MCOM 291P. All majors must also take one out of the following courses: ENGL 254G, EDUC 275.

Degree Requirements

To graduate with a BS in computer science, students must complete the following requirements:

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World (3 credits), and Quantitative Reasoning (6 credits completed via the major requirements), and Community Engaged Learning (3 credits).

At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from the degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Major Requirements

- Computer Science: CMPS 201, CMPS 202, CMPS 214, CMPS 215, CMPS 221, CMPS 240, CMPS 241, CMPS 271, and 18 additional credits in computer science courses numbered 214 and above (except CMPS 260 and CMPS 269).
- Technical Electives: Three credits to be chosen from the following: CMPS elective numbered 214 or above (except CMPS 260 and CMPS 269), BIOL 251, ECON 214, ECON 217, EECE 421, EECE 422, EECE 423, EECE 425, FINA 210, MATH 210, MATH 261, MATH/STAT 234, MATH/STAT 238, PHYS 222, PHYS 228, PHYS 235, PSYC 222, PSYC 229.
- Mathematics: MATH 201, MATH 211 (or CMPS 211), MATH 218 (or MATH 219), and STAT 230 (or STAT 233).

All prospective computer science majors are expected to complete CMPS 201, MATH 201, MATH 211 or CMPS 211, MATH 218, CMPS 202, and STAT 230 in the sophomore year. Computer science majors are expected to complete CMPS 214, CMPS 221, CMPS 241, and CMPS 271 in the junior year, and CMPS 215, and CMPS 240 in the senior year, and maintain an average grade of at least 2.3 in computer science courses. Students must have a minimum grade of C+ in both CMPS 201 and CMPS 202 before they are allowed to enroll in most CMPS courses.

Optional Focus Areas

Students may claim one or two of the following optional focus areas by taking their elective courses as specified for each focus area:

- Systems Focus Area: 3 courses (9 credits) selected from CMPS 224, CMPS 231, CMPS 232, CMPS 242, CMPS 243, CMPS 244, or a special topics course in systems.
- Artificial Intelligence and Data Science Focus Area: 3 courses (9 credits) selected from CMPS 244, CMPS 261, CMPS 262, or a special topics course in artificial intelligence and data science.
- Software Engineering Focus Area: 3 courses (9 credits) selected from CMPS 244, CMPS 278, CMPS 279, CMPS 288, or a special topics course in software engineering.

Sample Study Plan for BS

A typical study plan could have the following distribution of CMPS courses:

First Year

- First Term: CMPS 201, CMPS 211, MATH 201
- Second Term: CMPS 202, MATH 218, STAT 230

Second Year

- First Term: CMPS 214, CMPS 221, CMPS 241
- Second Term: CMPS 215, CMPS 240, CMPS 271

Third Year

- First Term: 3 CMPS electives
- Second Term: 3 CMPS electives

Sample Study Plan for BS/MS

First Year

- Fall: CMPS 201, CMPS 211, MATH 201
- Spring: CMPS 202, MATH 218, STAT 230
- Summer: CMPS 221

Second Year

- Fall: CMPS 214, CMPS 241, CMPS elective
- Spring: CMPS 215, CMPS 240, CMPS 271
- Summer: CMPS elective

Third Year

- Fall: 3 CMPS electives
- Spring: 4 Graduate Courses
- Summer: CMPS elective

Fourth Year

- Fall: 3 graduate courses + comprehensive (for thesis and project options)
- Spring: 3 graduate courses (for course-based option) or 2 graduate courses + project (for project option) or thesis (for thesis option)

Course Descriptions

Introductory Courses

CMPS 101 Introduction to Computer Science 2.2; 3 cr.
This course introduces the skills, concepts, and capabilities needed for effective use of information technology (IT). It includes logical reasoning, organization of information, managing complexity, operations of computers and networks, digital representation of information, security principles, and the use of contemporary applications such as effective Web search, spreadsheets, and database systems. Also, it includes a basic introduction to programming and problem solving through scripting web applications.

CMPS 201 Introduction to Programming 3.3; 3 cr.
This course introduces students to programming and computational thinking. A high-level programming language is used. Students will learn the principles of imperative and object-oriented programming in addition to basic data types, flow control (repetition and selection constructs), procedures and functions, parameter passing, scoping, recursion, arrays, and classes. Students are briefly introduced to simple algorithms and data structures. This course was previously numbered CMPS 200. Students cannot receive credit for both CMPS 201 and EECE 230.

CMPS 202 Data Structures 3.3; 3 cr.
This course consolidates algorithm design and programming techniques, with an emphasis on abstract data types. The course introduces students to the design, analysis, and implementation of data structures as well as some of the key algorithms operating them. Topics include lists, stacks, queues, deques, sets/maps, search trees (binary search trees and AVL trees), heaps/priority queues (heap sort), hash tables, and graphs (breadth-first search and depth-first search). Prerequisite: a minimum grade of C+ in CMPS 201. This course was previously numbered CMPS 212. Students cannot receive credit for both CMPS 202 and EECE 330.

CMPS 203 Programming for Everyone 3.3; 3 cr.
This course is designed for students with no prior exposure to computer science or programming. It aims to help students, regardless of their major, to feel justifiably confident of their ability to write small programs that allow them to accomplish useful goals. To this end, it provides students with a brief introduction to many topics in computer science so they will have an idea of what is possible when they need to think about how to use computation to accomplish some goals later in their career. The course uses the Python programming language. Not open to computer science students.

CMPS 204 Animation Tools 3.2; 3 cr.
This course teaches students the knowledge needed to create digital prototypes of 2D and 3D games. The course covers: the conceptual framework of interactive environments, game programming approaches, techniques and tools, manipulation of visual effects and sound, object animation, movement control, worlds, and interactivity. Prerequisite: CMPS 201.

CMPS 206 Computers and Programming for the Arts 2.2; 3 cr.
This course is an introductory computer course that presents computing and information, and illustrates their use. Students are introduced to computers and their role in society with emphasis on conceptual understanding as well as operational proficiency. Topics include principles of computer operations both from the hardware and software perspectives, basic networking concepts, web authoring concepts including HTML, cascading style sheets, publishing, and data manipulation using spreadsheets and databases. No credit is given to computer science majors. Students can get credit for only one of CMPS 206, CMPS 208, or CMPS 209.

CMPS 207 Programming for Digital Art 3.3; 3 cr.
CMPS 207 introduces students to the technical and conceptual skills necessary for developing web sites and for analyzing and visualizing programming concepts. In web design, students will learn HTML5 and CSS3. In programming analysis and visualization, students will learn to code using Processing, a software that uses the Java language, with an emphasis on programming images, animation, and interaction. Visualizations produced by processing can then be embedded into html pages. The core skills learned in this course will be applicable to most programming languages. No credit is given to computer science majors.

CMPS 208 Computing for Business 3.2; 3 cr.
Introduces Excel as a computer tool to plan, create, and use spreadsheets to formulate and solve business problems. It exposes students to a wide coverage of spreadsheet topics from introductory concepts such as problem formulation, writing formulas and functions, charting, grouping, and error prevention to more powerful and advanced features such as pivot tables, and analysis needed in decision-making. In addition, it boosts students' ability to collect, analyze, and forecast business and financial data to generate valuable insights. The course offers students an opportunity to apply skills in a laboratory environment in which they can experiment using Excel business problems designed for some selected topics. It provides the tools to perform modeling, calculations, analysis of various phenomena encountered in other courses such as finance, operations management, human resources, etc. No credit is given to computer science majors. Students can get credit for only one of CMPS 206, CMPS 208, or CMPS 209.

CMPS 209 Computers and Programming for the Sciences 2.2; 3 cr.
This course is designed to cover the essential computer skills needed by students in sciences. The course introduces how computers and Internet technologies work by emphasizing conceptual understanding as well as practical operational proficiency. Specifically, the course covers the essential concepts needed for designing spreadsheet applications, building personal relational databases, and programming using Visual Basic. Other topics covered include networking basics. No credit is given for computer science majors. Students can get credit for only one of CMPS 206, CMPS 208, or CMPS 209.

Theoretical Computer Science Courses

CMPS 211 Discrete Structures 3.1; 3 cr.
This course introduces students to discrete structures, focusing on those relevant to computing sciences. Topics covered include Logic and Proofs, Sets, Sequences, Functions, Growth of Functions, Algorithms and their complexities, Induction and Recursion, Counting, and Recurrence Relations. This course is equivalent to MATH 211.

CMPS 214 Design and Analysis of Algorithms 3.1; 3 cr.
This course introduces systematic methods for the design and (asymptotic) analysis of advanced algorithms and data structures. Topics include searching, sorting, order statistics, divide-and-conquer, greedy algorithms, dynamic programming, multi-threaded algorithms, matrix algorithms, as well as (advanced) graph algorithms. Several data structures are also studied such as red-black trees, binomial heaps, Fibonacci heaps, and suffix trees. Prerequisites: CMPS 211 or MATH 211, and a minimum grade of C+ in either CMPS 202 or EECE 330. This course was previously numbered CMPS 256. Students cannot receive credit for both CMPS 214 and EECE 331.

CMPS 215 Theory of Computation 3.0; 3 cr.
A course that covers basics of automata and language theory, computation theory, and complexity theory. Topics include regular expressions, finite automata, context-free grammars and parsing, pushdown automata, closure properties, Turing machines, Church's thesis, reductions and decidability, time complexity and NP-completeness, space complexity, polynomial-space and log-space computations, circuit complexity, probabilistic computations and complexity classes, approximation algorithms, and selected topics as time permits. Prerequisites: CMPS 214 or EECE 331. This course was previously numbered CMPS 257. Students cannot receive credit for both CMPS 215 and EECE 338.

Computer Architecture and Parallel Computing Courses

CMPS 221 Computer Organization and Design 3.0; 3 cr.
This course covers the fundamentals of computer architecture with a focus on single-core processor design. Topics include: digital logic design, combinational and sequential logic, hardware for computer arithmetic, floating point arithmetic, assembly programming, instruction set architecture, datapath design, pipelining and pipeline hazards, memory organization, cache design, and virtual memory. Prerequisites: CMPS 211 or MATH 211, and a minimum grade of C+ in either CMPS 202 or EECE 330. This course was previously numbered CMPS 255. Students cannot receive credit for both CMPS 221 and EECE 321.

CMPS 224 GPU Computing 3.0; 3 cr.
This course covers parallel computing in the context of processors with many computational cores, with particular emphasis on data parallelism and general purpose GPU programming. The course introduces the CUDA programming model as well as the GPU architecture and memory organization. The course then covers how to map algorithms to parallel hardware and common optimizations for parallel code using numerous parallel patterns and applications case studies, such as: vector addition, matrix multiplication, convolution, stencil computation, histogram, reduction, prefix-sum, ordered merge, sorting, sparse matrix computation, graph traversal, and others. The course also covers a selection of advanced parallel programming practices. Students cannot receive credit for both CMPS 224 and EECE 696. Prerequisites: CMPS 221 or EECE 321.

Programming Languages and Compilers Courses

CMPS 231 Programming Languages 3.0; 3 cr.
This course covers the fundamentals of programming language design and implementation. The course introduces functional programming and examines the language design principles underlying functional, imperative, and object-oriented languages. Type systems are also introduced. The course also covers the initial stages of programming language implementation, including lexing, parsing, and semantic analysis. Prerequisite: a minimum grade of C+ in either CMPS 202 or EECE 330. This course was previously numbered CMPS 258. This course is equivalent to EECE 334.

CMPS 232 Compiler Construction 3.0; 3 cr.
This course covers the design and implementation of optimizing compilers starting from source code representation down to machine code. Topics include intermediate representations, linkage and storage conventions, intermediate code generation for imperative and object-oriented languages with polymorphism, global dataflow analysis and the iterative dataflow algorithm, local and global optimizations, backend code generation, and register allocation. Prerequisites: CMPS 221 or EECE 321. This course was previously numbered CMPS 274.

Systems and Networking Courses

CMPS 240 Operating Systems 3.0; 3 cr.
This course provides an introduction to the fundamentals of operating system function, design, and implementation. It contains a theory component illustrating the concepts and principles that underlie modern operating systems and a practice component to relate theoretical principles with operating system implementation. The course is divided into three major parts. The first part of the course discusses concurrency (processes, threads, scheduling, synchronization, and deadlocks). The second part of the course discusses memory management (memory management strategies and virtual memory management). The third part of the course concerns file systems, including topics such as secondary storage systems and I/O systems. If time permits, the following topics will be briefly examined: virtualization, security, distributed synchronization, and perhaps other topics. A case study of a contemporary operating system like UNIX accompanies the course. Prerequisite: CMPS 221 or EECE 321. This course was previously numbered CMPS 272. This course is equivalent to EECE 432.

CMPS 241 Systems Programming 3.0; 3 cr.
This course introduces students to systems programming in languages that expose machine characteristics and low-level data representation (e.g., C, C++). It emphasizes how programs interact with the underlying hardware and operating system. Topics include pointers, explicit memory management, debugging, and the use of essential development tools. Students will explore program organization using build tools and libraries, system calls, and POSIX interfaces for working with files, directories, and networks, including an introduction to networking basics and an HTTP overview. The course also covers C++ programming techniques such as inheritance, templates, and the Standard Template Library (STL). Additional topics include concurrent programming, parallel programming, and secure coding practices with a focus on unsafe functions and examples on packet sniffing. By the end of the course, students will be equipped to design, implement, and debug complex, efficient, and reliable system-level programs. Prerequisite: a minimum grade of C+ in either CMPS 202 or EECE 330. This course was previously numbered CMPS 273.

CMPS 242 Computer Networks 3.0; 3 cr.
An introduction to network architectures and protocols, placing emphasis on Internet design principles and methodology. Specific topics include application layer protocols, network programming, transport protocols, circuit switching and packet switching, routing algorithms, multicast, local and wide area networks, error detection and correction, and performance evaluation. Prerequisite: CMPS 221 or EECE 321. This course was previously numbered CMPS 284. This course is equivalent to EECE 350.

CMPS 243 Computer and Information Security 3.0; 3 cr.
This course introduces students to the world of information and computer security. Students will be exposed to a wide range of security risks, threats, and vulnerabilities of computing systems, and will learn their fundamental aspects such as cryptography, user authentication, access control, malicious software, and attack vectors. A tentative list of additional covered topics includes: software security, intrusion detection and prevention, security management and risk assessment; security operations, auditing, testing, incident recovery and contingency planning. The course will examine causes of security breaches and give methods to help preventing them. Prerequisite: CMPS 241.

CMPS 244 Database Systems 3.0; 3 cr.
This course covers the fundamental concepts of database systems. Topics include data modeling using the Entity-Relationship model and the Relation model; query languages including relational algebra and SQL; File Organization and Indexing; Normalization; database programming; and NoSQL databases. The course is offered in blended-format and includes a term project. Prerequisite: CMPS 203 or a minimum grade of C+ in either CMPS 202 or EECE 330. This course was previously numbered CMPS 277. This course is equivalent to EECE 433.

CMPS 246 Cloud Computing 3.0; 3 cr.
An introduction to cloud computing demonstrating the fundamental concepts, terminologies, mechanisms and technological enablers pertaining to cloud environments. Specific topics covered in this course include cloud delivery and cloud deployment models, virtualization and containerization, load balancing, autoscaling, pricing models, cost metrics, and security threats and attacks. Students will get hands-on experience with different cloud computing paradigms and cloud services (e.g., VMs, Storage, Serverless Computing) on a major public cloud platform. Prerequisite: CMPS 240 or EECE 432. This course was previously offered as CMPS 297U.

Computational Science Courses

CMPS 251 Numerical Computing 3.1; 3 cr.
Techniques of numerical analysis: number representations and round-off errors, root finding, approximation of functions, integration, solving initial value problems, Monte-Carlo methods. Implementation and analysis of the algorithms are stressed. Projects using MATLAB or a similar tool are assigned. Prerequisites: CMPS 203 or a minimum grade of C+ in either CMPS 201 or EECE 230, and MATH 201. This course is equivalent to MATH 251.

CMPS 254 Numerical Linear Algebra 3.0; 3 cr.
A course on direct and interactive methods for solving general and special systems of linear equations, covering LU decomposition, Choleski decomposition, nested dissection, marching algorithms; Jacobi, Gauss-Seidel, successive over-relaxation, alternating directions, and conjugate gradient iterative methods. This course is equivalent to MATH 281. Prerequisites: MATH 218 or MATH 219. Prerequisite or corequisite: CMPS 251. This course was previously numbered CMPS 281.

Artificial Intelligence and Data Science Courses

CMPS 260 AI for Everyone 3.0; 3 cr.
This course introduces students to the fundamentals of Artificial Intelligence (AI) with a focus on Machine Learning (ML) and Deep Learning (DL). It is designed for beginners with basic programming knowledge and aims to provide a clear understanding of AI concepts, applications, and ethical considerations. Prerequisites: CMPS 201 or CMPS 203. This course is not open for computer science majors.

CMPS 261 Machine Learning 3.1; 3 cr.
This course covers Machine Learning theory, algorithms, and applications. Machine Learning is currently at the heart of Artificial Intelligence. It enables computational systems to adaptively improve their performance with experience accumulated from the observed data. This course balances theory and practice and covers the mathematical as well as the heuristic aspects. It also covers the latest trends in Machine Learning such as deep learning. Prerequisites: CMPS 203 or a minimum grade of C+ in either CMPS 201 or EECE 230, and one of the following (BUSS 200, STAT 201, STAT 210, STAT 230, STAT 233, EDUC 227, ECON 213, or NURS 203), and MATH 218 or MATH 219. This course was previously numbered CMPS 287. This course is equivalent to EECE 490.

CMPS 262 Data Science 3.0; 3 cr.
This course introduces foundational elements comprising the data science pipeline. It covers techniques in data acquisition, cleaning, and preparation for machine learning, basic applied machine learning techniques spanning distance-based algorithms, rule-based algorithms, and black box algorithms, basic statistics for machine learning (descriptive, inferential, and estimation statistics), basic time series analysis and forecasting techniques, data production techniques using knitr and R-Markdown, and machine learning interpretability using SHAP. The course is delivered using both the R and Python programming languages. Prerequisites: CMPS 203 or a minimum grade of C+ in either CMPS 201 or EECE 230, and one of the following (BUSS 200, STAT 201, STAT 210, STAT 230, EDUC 227, ECON 213, or NURS 203). This course was previously numbered CMPS 276.

CMPS 269 AI Ethics 3.0; 3 cr.
Artificial Intelligence (AI) is no longer science fiction. It has become a reality that is integrated in our daily lives and is causing significant changes in every aspect of our society. AI is nearly everywhere now, from the little applications we use on our smart phones all the way to driverless cars. It is also breaking into more and more domains including law and medicine. This is raising pressing ethical concerns when it comes to using AI in real-world applications that have significant consequences on people's lives. In this course, we will conduct a critical examination of various ethical issues related to AI such as safety and security, privacy, transparency, accountability, bias and fairness. This course was previously offered as CMPS 297T. This course is equivalent to PHIL 208A.

Software Engineering Courses

CMPS 270 Software Construction 3.0; 3 cr.
Software Construction provides methods, tools and techniques to develop, modify and maintain complex and efficient software systems. Topics include object-oriented design; specifications and invariants; abstract data types, testing, design patterns, concurrency; version control and event driven programming. Prerequisite: a minimum grade of C+ in either CMPS 202 or EECE 330. This course was previously numbered CMPS 252.

CMPS 271 Software Engineering 3.0; 3 cr.
This course introduces practical industry-standard software engineering best practices to students that have already written moderate sized software. Students are exposed to full development lifecycle methodologies, choosing the right SDLC, requirements management, software design, design patterns, testing. A group term project provides a holistic hands-on experience building an end-to-end software application using agile principles and emulating a real-world environment often for real clients with real needs. Other topics covered include working in a team, professionalism, project management, and ethics. Prerequisite: a minimum grade of C+ in either CMPS 202 or EECE 330. This course was previously numbered CMPS 253. This course is equivalent to EECE 430.

CMPS 278 Web Programming and Design 3.3; 3 cr.
This course introduces the fundamentals needed to program on the Internet as well as the state-of-the-art technologies used in designing and developing rich multi-tiered web-based applications. It presents the basics of client-side/server-side web programming and the skills and tools needed to create dynamic Web-based applications. It provides in-depth coverage of various markup languages and their associated cascading style sheets, several client side and server side scripting languages (such as C#, PHP and JavaScript including JQuery, Angular, and NodeJS) in addition to AJAX-enabled rich Internet applications, client-side technologies, web services, Web Servers, and multi- tiered applications using relational database systems. Prerequisite: a minimum grade of C+ in either CMPS 202 or EECE 330.

CMPS 279 Mobile Application Development 3.0; 3 cr.
This course introduces students to the world of mobile applications development from a software engineering perspective. Students will learn the importance of a good design for a mobile application, in addition to being able to write a basic to intermediate mobile application. The course includes many software design patterns and user interface design patterns. Students will learn how to collect, store, and present data in a mobile application, in addition to using the different exciting features of a mobile such as locations, graphics, cameras, and other features. Prerequisite: a minimum grade of C+ in either CMPS 202 or EECE 330.

Graphics and Gaming Courses

CMPS 280 Digital Media Programming 3.0; 3 cr.
The class is an introduction to digital media programming and processing. The course explains the essential technology behind images, animations, sound, and video and illustrates how to write interactive programs that manipulate these media in creative ways. The class assumes basic knowledge in Java or a first course in programming. Prerequisite: a minimum grade of C+ in CMPS 201. This course was previously numbered CMPS 230.

CMPS 285 Computer Graphics 3.0; 3 cr.
A course that covers the practice of, and underlying mathematical foundation for, interactive graphics programming. Topics include basic graphics systems, graphics primitives and attributes, windows and viewports, clipping, geometric transformations, color systems, 2D texture mapping, and introduction to 3D graphics. Programming in OpenGL will be used. Prerequisite: a minimum grade of C+ in either CMPS 202 or EECE 330.

CMPS 286 Computer-Aided Geometric Design 3.0; 3 cr.
A course that discusses the representation of free-form curves and surfaces in modeling objects by computers, including curve approximation and interpolation, spline curves (Bezier and B-splines), visual smoothness of curves, geometric continuity, parameterization of curves, introduction to surface interpolation and approximation, and spline surfaces (Bezier and B-splines). Prerequisite: CMPS 285.

CMPS 288 Game Programming 3.0; 3 cr.
This course introduces students to game programming using state of the art technologies. The course covers both theoretical backgrounds and implementation details of different components of games. Topics covered will be the physical control of a game character, interactions between objects, inventory, HUD, and AI. Prerequisite: a minimum grade of C+ in either CMPS 202 or EECE 330.

CMPS 289 Human Computer Interaction 3.0; 3 cr.
This course describes the psychological principles of human-computer interaction. Evaluation of user interfaces. Usability engineering. Task analysis, user-centered design, and prototyping. Conceptual models and metaphors. Software design rationale. Design of windows, menus, and commands. Voice and natural language I/O. Response time and feedback. Color, icons, and sound. Internationalization and localization. User interface architectures and APIs. Case studies and project. Prerequisites: CMPS 271.

Special Courses

CMPS 290 Internship 0.0; 0 cr.
This course requires students to undergo professional training in computer science for eight full weeks at a recognized firm subject to department approval. Prerequisite: consent of instructor.

CMPS 296 Computer Science Tutorial 1–3 cr.
Prerequisite: senior standing.

CMPS 297 Special Topics in Computer Science 1.0-3.0; 1–3 cr.
A course on selected topics that change according to the interests of instructors and/or students. Topics are chosen from state-of-the-art innovations in software and computer information systems. CMPS 297 courses will be assigned different prerequisites depending on the topic of each course.

CMPS 299 Capstone Project 3.0; 3 cr.
A course to enhance students' skills with practical experience giving them the opportunity to integrate knowledge accumulated in different courses. In this course, students must deliver a software product which passes through the design, analysis, implementation, testing, and evaluation stages. Prerequisites: consent of the instructor and senior standing.

CMPS 299A Capstone Project 1.0; 1 cr.
It is the first course in a series of two courses (CMPS 299A and CMPS 299B), taken in consecutive terms. The objective of both courses is to enhance students' skills with practical experience giving them the opportunity to integrate knowledge gained from courses across the curriculum. Students must work in teams and can pursue either an applied or research project. If the project is applied, students must identify the problem, analyze it, identify/define functional and non-functional requirements and constraints, and propose a valid software architecture. If the project is research oriented, students must identify the problem, analyze the work related to the problem being tackled, and propose a novel solution to the problem. Regardless of the choice of project, students must document their work in the form of written reports and oral presentations. Prerequisites: consent of the instructor and senior standing.

CMPS 299B Capstone Project 2.0; 2 cr.
It is a continuation of CMPS 299A, where the project that was started in CMPS 299A is completed. If the project is applied, students must deliver a fully functional software along with the proper documentation. If the project is research oriented, students must deliver a report that includes the motivation of the work and its impact, related work, proposed approach, evaluation, and comparison with other approaches. Prerequisites: CMPS 299A.

42 Credits in Computer Science

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (6)	Understanding the World (3), Quantitative Reasoning (54)	Community-Engaged Learning (3)	Technical Electives (3)
Lecture Courses (9+12+ 6+3+3 +54+3)	Required Arabic course (3) Required English courses (usually 6): ENGL 203(3), 204(3), as determined by placement	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Required courses (6)	Required Understanding the World courses (3) Required CMPS courses (24): CMPS 201(3), 202(3), 214(3), 215(3), 221(3), 240(3), 241(3), 271(3) Required CMPS electives (18): to be chosen from CMPS courses above 214 (Except CMPS 260 and CMPS 269) Required mathematics courses (12): MATH 201(3), MATH 211(3) (or CMPS 211), MATH 218 (or 219), STAT 230 (or 233)	Required courses (3)	Required 3 credits course (3): CMPS elective numbered 214 or above (Except CMPS 260 and CMPS 269), BIOL 251, ECON 214, ECON 217, EECE 421, EECE 422, EECE 423, EECE 425, FINA 210, MATH 210, MATH 261, MATH/ STAT 234, MATH/ STAT 238, PHYS 222, PHYS 228, PHYS 235, PSYC 222, PSYC 229
Seminar (0)						
Laboratory				CMPS 201, 202, 278		
Research project (0 or 3)						

Department of Earth Sciences

Chairperson	Doummar, Joanna
Professor	Abdel-Rahman, Abdel-Fattah
Associate Professor	Doummar, Joanna
Assistant Professors	Nemer, Tony
Lecturers	Bahnan, Alexy; Haidar, Ali, Khadra, Wisam
Instructor	Kallab, Antoine

The Department of Earth Sciences offers a program that leads to the degree of bachelor of science in earth sciences. Students wishing to transfer to earth sciences must secure the approval of the department. In addition, students must have a strong science background and have taken the freshman science program or its equivalent.

The department also offers undergraduate elective courses which include GEOL 101, GEOL 102, GEOL 103, GEOL 104, GEOL 106, and GEOL 201 in general earth sciences, and GEOL 204, GEOL 205, GEOL 206, GEOL 208, GEOL 209, GEOL 227, and GEOL 290B in the fields of environmental and planetary earth sciences.

Field trips are a required part of most earth sciences courses.

Mission Statement

The Department of Earth Sciences provides a solid grounding in geosciences at the service of a sustainable earth. Through a series of foundational courses, students acquire a thorough appreciation of the physical, chemical, and biological processes shaping the structure and evolution of the Earth's geosphere, atmosphere, hydrosphere, and biosphere and the complex interactions between them. Process-based concepts combined with fieldwork techniques, lab, and computational experience allow the construction of quantitative models of relevance to resource exploration (e.g., water, oil and gas, and minerals), risk and hazard assessment (e.g., earthquakes and landslides), and emerging environmental issues (e.g., Landfills, soil, and water contamination). A venerable geological museum features a historical collection of rocks, fossils, and maps which bring the field to the classroom with in-house exposure to Earth Science processes. With our track-oriented approach and interdisciplinary curriculum, our graduates acquire an appreciation of the broad relevance of geosciences to landscapes, built and natural environments, and life's evolution around them. We seek to provide our students with the knowledge, conceptual frameworks, and technical skills that prepare them to lead successful careers as professional geoscientists and/or future researchers.

BS Degree in Earth Sciences

The requirements for a BS degree in earth sciences are 90 credits for students entering the department at the sophomore level, including 36 credits in the major. The distribution of university requirements is as follows:

Core required earth sciences courses: GEOL 201, GEOL 203, GEOL 207, GEOL 213, GEOL 216, GEOL 216L, GEOL 219, GEOL 221, GEOL 223, GEOL 223L, GEOL 226, GEOL 297, GEOL 298, and GEOL 299 which is a total of 30 credits, in addition to at least two required earth sciences elective courses (6 credits).

Students have to take three required Quantitative Reasoning (9 credits) - MATH 201 STAT 210 or STAT 231, and CMPS 203 or equivalent, in addition to two Understanding the World courses (6 credits) from chemistry and/ or physics. Students may opt for MATH 202 or Understanding the World course to fulfill the 3 remaining mandatory credits.

Students are also required to take a total of 6 credits to be selected from a list of approved departmental courses or interdepartmental courses A 0-credit mandatory internship course GEOL 299 provides students with the opportunity to acquire a professional experience in the field of earth sciences.

No course may be taken without its prerequisite unless authorized by the department chair.

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits).

At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Students admitted in earth sciences are eligible to continue in the program provided they obtain, by the end of their third regular term at AUB, a minimum average of 2.3 in any three out of the following five courses: GEOL 201, GEOL 216, GEOL 213, and GEOL 223. Otherwise, they will normally be dropped from the department. Consideration for readmission requires a minimum cumulative average of 2.3 overall and a minimum average of 2.3 in any three out of the following five earth sciences courses: GEOL 201, GEOL 216, GEOL 213, and GEOL 223, and this should be achieved within the following two regular terms (at the very latest) after being dropped from the major. Majors must complete the following courses, in which a general average of 2.3 or more must be maintained in core earth sciences required courses.

Minor in Earth Sciences

To obtain a minor in earth sciences, students must complete the following core course GEOL 201, and any four courses from the following: GEOL 209, GEOL 216, GEOL 213, GEOL 223, and GEOL 227 (for a total of 15 credits).

Course Descriptions

GEOL 101 The Earth, Present and Past 3.0; 3 cr.
A freshman level study of the present-day processes that shape the Earth we live on, such as plate tectonic activity, rock formation and erosion, coupled with an overview of the origin and history of the Earth and life. Every term.

GEOL 102 Environmental Physical Geography 3.0; 3 cr.
An introduction to the structure, classification, physical processes and characteristics of the Earth's atmosphere, hydrosphere and biosphere, dynamics of change, and associated environmental impacts. Every term.

GEOL 103 Introduction to Marine Geology 3.0; 3 cr.
A freshman level survey of oceanic geological processes, wave dynamics, submarine springs, marine economic mineral resources, marine communities, pollution, global change, and marine-related environmental issues. Every term.

GEOL 104 Natural Disasters 3.0; 3 cr.
A freshman level course covering events involving natural forces that have major devastating effects on humankind. These include mud flows, landslides and slope failure, earthquakes, tsunamis, explosive eruptions and volcanic hazards, meteoritic impacts and mass extinctions, hurricanes and tornadoes, flooding, and forest fires. Every term.

GEOL 105 Life Resilience and Extinction 3.0; 3 cr.
A freshman level course that explores the resilience of life and the significant impact of extinction events, as revealed by the fossil record. It employs a systems-based approach to study the interactions between the lithosphere, atmosphere, hydrosphere, and biosphere. The course highlights major extinction events, dramatic climatic changes throughout Earth's history, and the evolution of plant and animal species. It particularly examines the Pleistocene-Holocene period, focusing on the processes such as climatic mechanisms and volcanism—that drive extinction and resilience. Every term.

GEOL 106 Water and Climate 3.0; 3 cr.
A freshman-level course highlighting the science of water as a vital resource, including the water cycle, and the difference between streams, rivers, springs, and wells. This course presents also the main scientific evidence of climate change and its possible effects on water resources availability, demand, and supply in a changing world. Several worldwide initiatives for climate change adaptation and water resources management will be also addressed and discussed through presentations, readings, and class debates. Every term.

GEOL 201 Physical Geology 3.0; 3 cr.
A sophomore and higher- level course (GE Understanding the World) introducing minerals, igneous, sedimentary and metamorphic rocks, geological structures, and external Earth processes, including the geologic work of streams, glaciers, groundwater, wind, and the plate tectonics theory. Every term.

GEOL 203 Physical Geology Laboratory 0.2; 1 cr.
An introduction to the identification of rocks and minerals in hand specimen, geographic and geological maps, and basic interpretation of geological data. Every term.

GEOL 204 Dinosaurs and Life History 3.0; 3 cr.
A sophomore and higher-level course (GE Understanding the World) covering topics that include structure and tectonics of the Earth, origin and evolution of life, climatic changes through time, life forms throughout the geologic eras, bacteria and algae in the Precambrian, trilobites, fishes and first trees, in the Paleozoic, dinosaurs, birds and reptiles, in the Mesozoic, mammals, in the Cenozoic, major extinction events in Earth's history, and the theory of evolution. Not open for PTGS (discontinued program) or earth sciences students. Every term.

GEOL 205 Earth Resources and Energy 3.0; 3 cr.
A sophomore and higher-level course (GE Understanding the World) covering the main economic mineral resources and traditional and alternate energy resources, with an emphasis on the environmental impacts of their use and misuse. A special emphasis is given to regional issues. Open to both arts and sciences students, but not to earth sciences and petroleum geosciences (discontinued program) students. Every term.

GEOL 206 Planetary Geology 3.0; 3 cr.
A sophomore and higher-level course (GE Understanding the World) covering topics that include the origin of the solar system, Earth as a model of planetary evolution, meteorites and impact craters, planetary Earth Sciences of planets Mercury, Venus, Mars and its recent discoveries, Jupiter and a steroidal belt, Saturn and Titan, Uranus, Neptune and Pluto and their major satellites, with some emphasis on the patterns of variation among planets. Planetary magnetic fields, atmospheres, bulk chemical compositions, internal structure, and present geologic activities are covered. Not open for PTGS (discontinued program) or Earth Sciences students. Every term.

GEOL 207 Map Interpretation 2.2; 1 cr.
A course on the interpretation of topographic, geomorphological, and geological maps for the inference of geological properties and geometries. This course also introduces spatial interpolation techniques and the construction of geologic maps and cross-sections using dedicated software. Prerequisites: GEOL 201 or consent of instructor. Annually.

GEOL 208 Water in a Changing World 3.0; 3 cr.
This course provides a brief introduction to the science of water, both from a geological/hydrological/environmental and from an archaeological/historical perspective. The course explores how societies in the past and in the present dealt or deal with water management issues. The course aims to provide students with the opportunity to explore water related issues with supported science and historical evidence. Formerly: GEOL 290 A. Students cannot receive credit for both GEOL 208 and AROL 230. Annually.

GEOL 209 Building and Destruction of Mountains 3.0; 3 cr.
A sophomore and higher-level (GE Understanding the World) course covering topics that include global landforms and tectonics, endogenic processes and the role of Earth's mantle, exogenic processes (fundamentals of weathering and erosional agents), fluvial, groundwater, and aeolian processes, coastal processes and reshaping of the seashore, glacial / periglacial processes and landforms, sea-level change, uplift, and inundation, as well as present geologic activities related to Earth's landforms. Every term.

GEOL 210 Geomorphology 3.0; 3 cr.
An introduction to the study of landforms and the interaction of external geological forces and erosion agents with the structure and composition of their surface rocks. This course is also an examination of the interaction between the internal and external Earth processes responsible for the development of land forms. Prerequisites: GEOL 201 and GEOL 203, or consent of the instructor. Occasionally.

GEOL 213 Structural Geology 2.2; 3 cr.
An introduction to the study of rock deformation, the relationship between stress and strain, and the interpretation of structures and their significance to regional and global tectonics. Prerequisite: GEOL 201. Annually.

GEOL 216 Mineralogy and Optical Mineralogy 2.2; 3 cr.
An introduction to the main concepts of crystallography, fundamentals of crystal chemistry, classification of the main mineral groups, mineral associations, and ore minerals/metals formation, introduction to the theory of crystal optics, the interaction of light and, matter and the resultant optical properties used for mineral identification under the optical microscope, the relation between physical/optical properties of minerals and their internal atomic structures, and a brief introduction to the use of specific minerals in environmental and medical applications. The practical work is given in a separate lab course. Annually. Previously GEOL 211 GEOL 212.

GEOL 216L Mineralogy and Optical Mineralogy Laboratory 0.2; 1 cr.
GEOL 216 L is an introduction to crystallography, determination of crystal systems and point groups, identification of the main rock-forming and ore minerals in hand specimens using their physical properties, introduction to crystal optics and the optical microscope, a systematic study of the common rock-forming minerals in thin sections and their identification based on their distinct optical properties, and use chemical data to calculate mineral stoichiometry. Annually. Previously GEOL 211 GEOL 212.

GEOL 219 Geologic Field Methods 0.3; 2 cr.
An introduction to the applied methods and concepts used in field geological mapping. The students will learn how to write geological reports, produce geological maps and cross-sections, and investigate geological problems based on extensive mapping fieldwork in Lebanon. Prerequisites: GEOL 207, GEOL 223, and GEOL 213 or consent of the instructor. Annually.

GEOL 221 Petrology 2.2; 3 cr.
A course on the origin, composition, occurrence, and classification of igneous and metamorphic rocks and their systematic identification in hand specimens and in thin sections. Prerequisite: GEOL 216 and GEOL 216L or consent of instructor. Annually.

GEOL 223 Sedimentology and Stratigraphy 2.2; 3 cr.
This course is a sophomore and higher-level course covering topics that include basic theoretical knowledge in sedimentation and stratigraphy. Students will get acquainted with depositional systems, carbonates, bio-sedimentology, diagenesis, provenance, geochemistry, sediment transport, and basin analysis. This course also focuses on the vertical and lateral relationships between units of sedimentary rocks that are defined on the basis of lithologic and geophysical properties, paleontological characteristics, and age relationships. Previously GEOL 222 GEOL 214.

GEOL 223L Sedimentology and Stratigraphy Lab 0.3;1 cr.
Laboratory component of sedimentology and stratigraphy. The students learn how to use basic and advanced techniques to classify sedimentary rocks based on their chemical composition and texture and relate them to a depositional environment. Furthermore, they learn some basic skills for thin section preparation, inspection with a polarizing microscope, potentially with the Scanning Electron Microscope (SEM). They will apply the sieving and counter coulter techniques to obtain particle size distribution curves and will analyze them statistically. Additionally, two sessions are devoted for the identification of vertebrate and invertebrate macro and micro fossils. This course introduces the students to correlations using seismic stratigraphy and other methods in stratigraphy.

GEOL 224 Regional Geology 3.0; 3 cr.
A course on the geology of the Middle East region, with emphasis on its stratigraphy, structure, geological history, and tectonic evolution, and with reference to oil and mineral resources in the region. Prerequisites: GEOL 213 and GEOL 222, or consent of instructor. Annually

GEOL 225 Petroleum Geology 3.0; 3 cr.
A course on hydrocarbon formation and occurrence such as oil and gas fields, source and reservoir rocks, petroleum traps, as well as exploration and extraction methods. Prerequisites: GEOL 213, or GEOL 223, or consent of instructor. Annually.

GEOL 226 Introduction to Geophysics 3.0; 3 cr.
A junior/senior level course covering the basic principles and fundamental concepts of the main geophysical methods: seismic, electrical, electromagnetic, and geophysical borehole logging techniques, as well as gravimetry and magnetometry. Applications of the various geophysical techniques in some domains as mining of ore minerals, the geotechnical field and the exploration of hydrocarbons and other natural resources are covered briefly. Prerequisite: GEOL 201. Annually.

GEOL 227 Alternate Energy and Climate 3.0; 3 cr.
A sophomore and higher-level (GE Understanding the World) course that offers a wide overview of fossil fuels and environmental impacts, principles & processes involved in harvesting alternate energy resources: solar energy, hydropower and water resources, wind power, biomass energy, geothermal and tidal energy, nuclear energy and its impacts, climate science, anthropogenic climate forces and the resultant effect on climate change. Every term.

GEOL 271/272 Directed Study in Earth Sciences 1.0-3,0; 1–3 cr.
A tutorial that may be repeated for credit with different topics or may replace a required course. Occasionally.

GEOL 290 Special Topics in Earth Sciences 1.0-3,0; 1–3 cr.
A course that covers a variety of topics in Earth Sciences not typically offered by the department. May be repeated for credit. Every term.

GEOL 297 Geological Mapping 0.18; 3 cr.
This course is a complete and independent geological investigation of a designated area and the preparation of a detailed geological map and geological field report. For juniors and seniors in the major. Prerequisite: GEOL 219. Annually. Previously GEOL 229.

GEOL 298 Applications in Earth Sciences 3 cr.
GEOL 298 is a capstone course where students apply the knowledge and skills acquired in various core and required courses in real-life problems or research questions in tracks related to environmental geosciences, engineering geosciences, life resilience and extinctions, resources exploration, petroleum geosciences, and geosciences for landscapes. Open for major only, annually, Prerequisite: GEOL 297 and completion of at least 2 major related electives.

GEOL 299 Professional Experience 0 cr.
Six full weeks of approved internship in a recognized consulting and/or contracting firm or research institute in AUB, Lebanon, or abroad, that allows students to apply their knowledge and skills in the applied field of earth sciences. Open to junior and senior major students only. Prerequisite: consent of instructor.

36 Credits

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9) and Human Values (3)	Societies and Individuals (Min. 6)	Understanding the World, Quantitative Reasoning (9:3/6+3/6)	Community-Engaged Learning (3)
Lecture Courses (9+12+6+36+9+3)	Required Arabic course (3) Required English courses: 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Required credits in Societies and Individuals to be selected from an approved GE list: 6 credits	Required Earth Sciences courses: GEOL 201(3), 216(3), 213(3), 219(2), 221(3), 223(3), 226(3), 297(3), 298(3) Elective Earth Sciences courses: GEOL 204(3), 208(3), 209(3), 225 (3), 227(3), 271 (3), 272 (3), 290(3), Two understanding the world courses must be an approved general education course from outside the major (PHYS 204, 205, 210) or CHEM 201, 202, 208) Required quantitative reasoning courses: CMPS 203(3), MATH 201(3) and STAT 210 (3) or STAT 231(3) Math 202 or understanding the world course (3) credits from approved GE in physics or chemistry and courses in Biology (BIOL 201 and BIOL 202)	To be selected from an approved GE list

Seminar (18 + 12)				Earth Sciences courses: GEOL 201(3), 213(3), 216(3), 221(3), 223(3), 226(3) Elective Earth Sciences courses: GEOL 225(3), GEOL 208, 209(3), 227(3), 290(3) Two approved main related courses. Approved courses from MSFEA, FAS (BIOL), FHS and FAFS	
Laboratory (11+4)				Required Earth Sciences courses: GEOL 203(1), 207 (1), 216L (1), 223L (1), 213(3), 219(2), 221(3), 226(3)	
Research Project (36+12)				Required Earth Sciences courses: 219(2), 297(3), 298(3), 299(0)	

Department of Economics

Chairperson	Neaime, Simon
Professor Emeritus	Makdisi, Samir
Professor	Neaime, Simon
Professor of Practice	Diwan, Ishac
Associate Professor	Salti, Nisreen
Assistant Professors	Abboud, Ali; Samad, Zeeshan; Yamout, Nadine; Zalghout, Abdallah
Lecturers	Ramadan, Usamah Husni
Instructors	Abdallah, Leen; Chaudhry, Rabia, Elias Rubeiz, Sylvia; Hamdan, Dana; Hijazi, Ryan; Kanaan, Maya; Karam, Ramzi; Makki, Malak; Mansour, Hassan; Nader, Pamela; Nakhle, Najla; Nassar, Rawan; Sabra, Raja

BA in Economics

Mission Statement

The undergraduate program in economics is a rigorous quantitative program which enhances students' analytical skills and critical thinking. In addition to broader economic concepts, the understanding of economic issues pertaining to the Middle East and North Africa region is given special attention. The department is committed to a liberal arts philosophy and the development of leadership skills in the field of economics. The program develops its students' professional competencies and responsible citizenship skills, and prepares them for a variety of careers in economic research, financial economics, and banking.

Degree Requirements

The requirements for a BA degree in economics are 90 credits for students entering the department at the sophomore level. Students accepted in economics must attain a GPA of 2.3 or above in major courses during the first three terms in order to remain in the program. The distribution of these courses is as follows:

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits).

At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Major Requirements

- Major Courses: 36 credits of economics courses including 21 credits as required courses (ECON 211, ECON 212, ECON 213 (or STAT 230), ECON 214, ECON 215, ECON 217, ECON 227), and 15 credits as elective economics courses.
- Required courses from outside the department: 12 credits including MATH 201, MATH 202, MATH 218 (or MATH 219), and ACCT 210.
- Electives from outside the department: 6 credits of free electives. Students majoring in economics are restricted from taking MATH 203 and MATH 204 as a free elective.

Transfers from other programs to a major in economics require an overall GPA of 3.0 or more; a minimum grade of B in each of ECON 211 and ECON 212; a minimum grade of C+ in ENGL 203; and a minimum cumulative average of 2.3 in MATH 201 and MATH 202.

Economics majors whose economics average falls below 2.3 in their first two terms in the major will be placed on departmental probation. Majors who have an average below 2.3 in their economics courses at the end of their third regular term in the major will be dropped from the major.

Minor Requirements

The minor program in economics requires 15 credits: ECON 211, ECON 212, one of ECON 214 or ECON 239 or ECON 243, at least one of ECON 217 or ECON 227, and one elective other than ECON 213 chosen from the available offerings, provided their prerequisite (or equivalent) has been satisfied.

Course Descriptions

ECON 101 Introduction to Microeconomics 3.0; 3 cr.
An introductory survey of the principles of microeconomics, designed primarily for freshman students. Annually.

ECON 102 Introduction to Macroeconomics 3.0; 3 cr.
An introductory survey of the principles of macroeconomics, designed primarily for freshman students. Annually.

ECON 203 Survey of Economics 3.0; 3 cr.
Elementary principles of microeconomics and macroeconomics and applications. Students majoring in economics cannot receive credit for ECON 203. Students who take ECON 203 may not receive credit for either ECON 211 or ECON 212. Every term.

ECON 211 Elementary Microeconomic Theory 3.0; 3 cr.
General principles of microeconomics; includes elements of supply and demand, consumer behavior, costs, market structures, and income distribution. Students cannot receive credit for both ECON 211 and AGSC 212; however, the courses will not be treated as equivalent. Every term.

ECON 212 Elementary Macroeconomic Theory 3.0; 3 cr.
General principles of macroeconomics; aggregate supply and demand framework is used to analyze overall movements in prices and national output, inflation and unemployment, and monetary and fiscal policies. Students cannot receive credit for both ECON 203 and ECON 212. Every term.

ECON 213 Economic Statistics I 3.1; 3 cr.
Display of data, properties of probability, methods of enumeration, conditional probability and independent events; univariate and bivariate distributions corresponding to both discrete and continuous variables; expectation, variance, covariance and correlation, moment generating functions, independent random samples and the central limit theorem; basics of confidence intervals and hypothesis testing. Pre/corequisite: MATH 201. Equivalent course: STAT 230. Students can receive credit for only one of BUSS 200, ECON 213, EDUC 227, STAT 201, STAT 210, or STAT 230. Every term.

ECON 214 Econometrics I 3.1; 3 cr.
This course introduces students to fundamental econometric methods, integrating theoretical understanding of regression analysis with practical skills in estimation and causal inference. Emphasis is placed on methods pertaining to cross-sectional data, including ordinary least squares (OLS), instrumental variables (IV), regression discontinuity design (RDD), and models for limited dependent variables. The course provides students with hands-on experience using statistical software to analyze real-world data. Prerequisites: ECON 211 or ECON 212, ECON 213 or STAT 230, and MATH 201. Corequisite: Math 218 or 219. Every term.

ECON 215 Econometrics II 2.2; 3 cr.
This course develops econometric tools necessary for analyzing dynamic and high-dimensional economic data, covering core methods in time series and panel data models, as well as modern machine learning approaches including regularization and tree-based methods. It equips students with the necessary theoretical knowledge and practical skills, including extensive hands-on experience with statistical software, to conduct rigorous empirical analysis on real-world data. Prerequisite: ECON 214. Every term.

ECON 217 Intermediate Microeconomics 3.0; 3 cr.
Theory of allocation of resources; consumers' choice and classical demand theory, exchange and welfare; theory of production and cost; price and output determination under alternative market structures; game theory and applications to oligopoly. Prerequisites: ECON 211 and MATH 201. Every term.

ECON 218 Behavioral Economics 3.0; 3 cr.
This course is a continuation of Intermediate Microeconomics and offers an introduction to behavioral and experimental economics. It uses neo-classical economics as a benchmark from which psychologically informed models are derived. The course covers the foundations of individual behavior in economics under certainty and uncertainty, the paradoxes of choice, and alternative choice models. It also examines the elements of experimental economics including auctions, bargaining, simulated markets, and the elements of behavioral game theory such as public goods games, dictator games, and ultimatum games. Prerequisite: ECON 214.

ECON 219 Economics of Financial Markets 3.0; 3 cr.
A survey of capital markets and asset pricing models; determination of the links between financial markets monetary policy, and economic growth. Prerequisites: ECON 214 and ECON 227. Annually.

ECON 221 History of Economic Thought 3.0; 3 cr.
A survey of the history of economic thought, both theory and policy, with an emphasis on contemporary economic thought. Prerequisite: ECON 217 or ECON 227, or consent of instructor. Annually.

ECON 222 Labor Economics 3.0; 3 cr.
A survey of the demand for and supply of labor, investment in human capital, market structure and efficiency of labor markets, collective bargaining, income distribution, and unemployment. Prerequisites: ECON 214 and ECON 217. Annually.

ECON 223 Economics of the Middle East 3.0; 3 cr.
A study of the resource endowment of the Arab Middle Eastern economies; their development experience, and the general outlook for growth and development. Prerequisites: ECON 217 or ECON 227, ECON 211 and ECON 212. Occasionally.

ECON 226 Public Economics 3.0; 3 cr.
Introduction on the nature and the role of governments in the economy. This course covers market failure and government intervention, government failure and public choice, economic analysis of public policy, inequality and tax policy. Prerequisites: ECON 214 and ECON 217. Annually.

ECON 227 Intermediate Macroeconomics 3.0; 3 cr.
A study of the aggregate approach to economics, including the determination of output, employment, interest rates, and the price level. Inflation and stabilization policies, budget deficits and the national debt, business cycles, theories of consumption, and investment behavior. Prerequisites: ECON 211, ECON 212, and MATH 201. Corequisite: MATH 202. Every term.

ECON 228 Monetary Economics 3.0; 3 cr.
Central banking and instruments of monetary management, alternative theories of the demand for money, the balance of payments and the processes of its adjustment. Prerequisites: ECON 214 and ECON 227. Annually.

ECON 230 Economic History 3.0; 3 cr.
Economic development of Europe and other areas up to 1914, with special emphasis on a number of distinct problems in different countries and historical periods. Prerequisites: ECON 211, ECON 212, ECON 214, and ECON 217 or ECON 227. Occasionally.

ECON 232 The Economics of Institutions 3.0; 3 cr.
This course will examine the role played by institutions and political economy considerations in determining overall economic performance. The course aims to describe the role and evolution of institutions in economic growth, to understand basic models of politics, and to provide an introduction to the dynamic effects of fiscal and monetary policy. By the end of the course, students should be able to understand the role of institutional failure, models of governance and mis-governance, optimal fiscal policy, and the concepts of reputation, credibility, and time inconsistency. Prerequisites: ECON 214 and ECON 227.

ECON 235 International Trade 3.0; 3 cr.
Classical trade model, the Heckscher-Ohlin theorem and subsequent theoretical developments, tariffs, domestic distortions, customs union, trade, and economic growth. Prerequisites: ECON 214 and ECON 217. Annually.

ECON 236 International Finance 3.0; 3 cr.
A study of macroeconomic equilibrium in an open economy. Topics covered include the interpretation of the national accounts, exchange rate determination, monetary policy in an open economy under fixed and floating exchange rates, balance of payments crises and contagion, and a historical perspective of the international monetary systems. Prerequisites: ECON 214, ECON 217 and ECON 227. Annually.

ECON 237 Economic Development I 3.0; 3 cr.
An introduction to development economics that covers the theory and empirics of development, quality of life, poverty, inequality, and knowledge-based policy making in the context of the challenges faced by developing countries including market-oriented reforms, impact of globalization, urbanization, agricultural development, and gender equality. Prerequisites: ECON 214, and ECON 217 or ECON 227. Annually.

ECON 239 Introduction to Mathematical Economics 3.0; 3 cr.
Linear algebra, single variable optimization, multi-variable optimization, and constrained optimization-basic theoretical concepts and practical applications- with an emphasis on the use of general functional forms and on comparative statics and with several examples drawn from the economics of uncertainty. Prerequisite: ECON 217. Annually.

ECON 240 Economic Development II 3.0; 3 cr.
Models of economic development and growth; macroeconomic planning; policy formulation and implementation in developing countries. Prerequisites: ECON 214 and ECON 227. Annually.

ECON 241 Industrial Organization 3.0; 3 cr.
Application of microeconomics; analysis of factors affecting market structure, conduct and firm behavior in imperfectly competitive industries; survey of theories relating to intensity of competition and maintenance of market dominance; rationale for antitrust laws. Prerequisites: ECON 214 and ECON 217. Annually.

ECON 242 Energy Economics 3.0; 3 cr.
This course introduces key aspects of major energy markets including oil, natural gas, coal, electricity, nuclear power, and renewable energy. It focuses on building economic models to analyze the various energy markets and uses these models to explore taxes and social welfare, government regulation and deregulation, public policy, and externalities. Prerequisites: ECON 214 and ECON 217. Occasionally.

ECON 243 Introduction to Game Theory and Economic Behavior 3.0; 3 cr.
Basic concepts and methods of game theory with applications to economic problems, Nash equilibrium, mixed strategies, zero sum games, repeated games. Prerequisite: ECON 217. Annually.

ECON 290 Special Topics in Economics (A,B,C…) 3.0; 3 cr.
May be repeated for credit on different topics. Prerequisite: junior or senior standing. Annually.

ECON 295 Senior Seminars in Economics 3.0; 3 cr.
Senior Seminars in Economics. Prerequisite: ECON 214

36 Credits in Economics (21 + 15)

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Economics and Societies and Individuals (21+15+3+3)	Understanding the World (6), Quantitative Reasoning (12)	Community-Engaged Learning (3)
Lecture courses (9+12+42+6+12)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Required economics courses (18): ECON 211(3), 212(3), 213(3), 214(3) [P213], 215, [P214], 217(3) [P211, 212], 227(3) [P211, 212] Five elective economics courses from the following and/or seminar courses (15): ECON [P214] 218(3) [P217] 219(3) [P214, P227], 221(3) [P217, P227], 222(3) [P217] 223(3) [P221, P212], 226(3) [P217], 228(3) [P227],230(3) [P211, P212], 232(3) [P227] 235(3) [P217], 236(3) [P217, P227], 237(3) [P217], 239(3) [P217], 240(3) [P227], 241(3) [P217], 242(3) [P217], 243(3) [P217], 290(3) and 295(3). Required business course (3): ACCT 210(3) One Societies and Individuals course must be an approved General Education course from outside the major	Understanding the World electives (6) Required mathematics courses: MATH 201(3), 202(3) [P201], 218(3) or 219(3) and CMPS 209 or CMPS 201 (3) or CMPS 203	Required (3)
Laboratory (0)					
Research project (0)					

Department of Education

Chairperson	Karami Akkary, Rima
Professors	Al-Hroub, Anies; Amin, Tamer; Boujaoude, Saouma; Ghaith, Ghazi; Khamis, Vivian; Khishfe, Rola
Professors Emeritus	Bashshur, Munir; Jurdak, Murad
Associate Professors	Baytiyeh, Hoda; El Mouhayar, Rabih (Science and Mathematics Education Center, Director); El-Hassan, Karma; Karami Akkary, Rima
Assistant Professor	Khalil, Lina
Lecturers	Bou Zeineddine, Amal; El Khatib, Lara; Hout, Hanine; Karameh, Jinan; Nashabe Mouawad, Rim; Osman, Enja; Shukri Balaa, Rola
Instructors	El Hout, Rim; Jouni, Nidal; Misk, Zeina; Moussa, Rola; Sarieddine, Diana; Yordi, Serene

The Department of Education offers programs at both the undergraduate and graduate levels. The undergraduate level program leads to a bachelor of arts degree in education/elementary. The post-BA/BS diploma program leads to a teaching diploma, diploma in special education, or diploma in educational management and leadership. Students can also complete the diploma program concurrently with a relevant BA/BS degree. The graduate program offers in person MA programs that lead to a master of arts degree in education; and online programs that lead to an online graduate diploma in online education; and an online MA in computing in education.

BA in Education/Elementary

Mission Statement

The bachelor of arts in education/elementary program aims at developing students' knowledge base for teaching and competence in professional practice as well as promoting a commitment to personal professional development and active participation in the professional community. Through fulfillment of coursework, field-based experiences, and professional community service activities, students are prepared to enter the field of teaching and/or graduate studies in education as reflective practitioners, literate in information and communication technology, and critical thinkers committed to the human and moral values of lifelong learning, integrity, innovation, civic responsibility, and leadership.

BA Program

The BA program is based on various conceptualizations of teacher preparation programs and contemporary international best practices and trends, and is aligned with international standards. The program prepares all students for both homeroom and subject matter teaching, the latter concentration (language arts/social studies, mathematics/science and art/music) being the student's choice. The program is structured developmentally where course offerings are scheduled by year, distributed over the sophomore, junior and senior years. The developmental distribution is based on core common courses and methodology-practicum courses.

The bachelor's degree in elementary education aims at developing:

- Professional understanding of children and their learning needs at the elementary level.
- Theoretical understanding and practical skills in homeroom and subject matter teaching.
- Broad-based competencies in methods and techniques of teaching to meet learning needs.
- Adequate knowledge of subject matter taught in elementary schools.

Degree Requirements

The program for the BA in education/elementary is based on the completion of at least 90 credits as follows:

- University General Education Requirements (39 cr.), with 9 cr. of the 39 cr. must be education courses
  - Cultures and Histories (9 cr.)
  - Human Values (3 cr.): At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA.
  - ENGL 203 (3cr.), ENGL 204 (3cr.); and ARAB Communication Skills Course (3 cr.)
  - Societies and Individuals (6 cr.): One Course (3 cr.) must be an approved General Education course from outside the major and one course (3 cr.) from the major.
  - Understanding the World (6 cr.): one course (3 cr.) must be an approved General Education course from outside the major and one course (3 cr.) from the major.
  - Quantitative Reasoning (3 cr.) Students are required to take at least a total of 9 cr. from Understanding the World and Quantitative Reasoning with at least 3 cr. from each.
  - Community Engaged Learning (3 cr.)
  - At least one of the GE or major courses should cover the theme of Social Inequalities.
- Education Requirements (45 cr.)
  - Core Education Courses (24 cr.): EDUC 211 or EDUC 216, EDUC 215, EDUC 217, EDUC 219, EDUC 221, EDUC 223 or EDUC 225, EDUC 231, EDUC 232
  - Methods Courses (9 cr.): EDUC 233, One of the following pairs: EDUC 228 and EDUC 229 (art and music) [currently frozen], EDUC 245 and EDUC 251 (language arts, English or Arabic, and social studies); or EDUC 252 and EDUC 257 (math and science)
  - Seminar (3 cr.): EDUC 291
  - Practicum courses (9 cr.): EDUC 268A, EDUC 268B and EDUC 268C or EDUC 268D

- Subject Matter Courses (12 cr.)
  - Specialization Courses (9 cr.): These are from 200 and above. They include EDUC 218 and one course in each of mathematics and science. Special mathematics and science courses designed for teaching in the elementary school are offered by the department (EDUC 271, EDUC 272, EDUC 273, and EDUC 274) and must be taken to fulfill this requirement.
  - Electives within Subject Matter (3 cr.): 3 credits in art or music
- General Electives (3 cr.)

BA in Education

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Education and Societies and Individuals	Subject Matter	Understanding the World, Quantitative Reasoning (9:3/6+3/6)	Community-Engaged Learning (3)
Lecture Courses (9+12+57 +6+3+3)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values Elective (3): Art or Music	Required Education courses (30 cr.): EDUC 211(3) or EDUC 216(3); 215 (3), 217 (3); 219(3); 221(3); 223(3) or 225(3); 230(3); 231(3); 232(3) One Societies and Individuals course must be an approved General Education course from outside the major General Elective(3 cr.)	Required subject matter courses (9 cr.): EDUC 218 (3) 6 credits in mathematics and science: one in mathematics (EDUC 271) and one in the sciences (EDUC 273)	Required Understanding the World courses (6 cr.) from the approved General Education courses; one from outside the Department Required Quantitative Reasoning courses (3 cr.) from the approved General Education courses	EDUC 268A, EDUC 268B, EDUC 268C or EDUC 268D
Seminar (3)			EDUC 291(3)			
Laboratory/ Research Project (18)			One pair of: EDUC 245/251 (6); 252 /257 (6); 228/229 (6) EDUC 233 (3) EDUC 268A (3) EDUC 268B (3) EDUC 268C or EDUC 268D (3)			

Minors in Education (15 credits)

The department offers three minors with the aim of providing students with an introduction to the psychological, philosophical, administrative, and professional foundations of education.

1. Minor in Educational Psychology

The minor in educational psychology is designed to allow students from many disciplines to explore child, adolescent, and adult development, and the psychological underpinnings of educational issues. Coursework includes consideration of the dynamics of learning and motivation in school settings, and introduces major topics, issues, and trends in special education. In addition, the coursework will provide students with the knowledge and skills needed for the pedagogical application of theories and principles of development, learning, memory, motivation, and individual differences. The applications include instruction, school guidance and counseling, classroom management, and measurement and evaluation. To complete a minor in educational psychology, students must take the following:

- EDUC 215 Learning and Human Development
- EDUC 221 Introduction to Special Education.
- EDUC 223 Introduction to Guidance and Counseling
- EDUC 217 Measurement and Evaluation for Classroom Teachers
- EDUC 280 Behavior Modification and Classroom Management or EDUC 232 Classroom Management in the Elementary School

2. Minor in Educational Administration and Policy

The minor in educational administration and policy is suitable for students interested in exploring education from an administrative and policy perspective to contribute to the improvement of educational systems. It is especially relevant for non-education students interested in pursuing research-focused master's degrees in educational administration and policy studies. This minor offers students a foundational understanding of educational systems, laws, policies, effective leadership organizational change and instructional strategies. It also allows them to explore the role of schools in society and the impact of culture, diversity, and social factors on education. To complete the minor in educational administration and policy, students must take the following:

- EDUC 211 The School and the Social Order
- EDUC 212 Educational Laws and Policies
- EDUC 213 Introduction to Educational Administration
- EDUC 215 Learning and Human Development or EDUC 225 Child and Adolescent Development
- EDUC 230 Instructional Strategies

3. Minor in STEAM Education

STEAM stands for science, technology, engineering, arts and mathematics. This minor in STEAM education provides students from a variety of different disciplines in the natural sciences, mathematical and computer sciences, social sciences, or humanities with an introduction to the field of education, by leveraging their interests in their respective fields. The minor also highlights how instruction can cut across and integrate across traditional school disciplines. To complete the minor in STEAM education, students must take the following:

- EDUC 230 Instructional Procedures
- EDUC 220 Instructional Media and Techniques
- EDUC 273 Science for Elementary Teachers I
- EDUC 218 Children's Literature or EDUC 231 Reading Instruction in the Elementary School
- EDUC 271 Problem Solving in Arithmetic and Algebra or EDUC 272 Problem Solving in Probability, Statistics, and Geometry

Diploma Programs

Teaching Diploma Programs

The teaching diploma program prepares students to become elementary and secondary school teachers. This requires specialization in a subject matter area that can be completed before or during professional preparation in the Department of Education. The program itself is comprised of a total of 24 credit-hours. This preparation culminates in a teaching diploma that qualifies students to teach at either the elementary or the secondary level. Students enrolled for both a bachelor degree and diploma/teaching diploma must satisfy the full requirements of both degrees and complete at least a total of 114 credits.

Teaching Diploma in Elementary Education

Diploma Course Requirements

- EDUC 215
- EDUC 231
- EDUC 232
- An elective in education
- ENGL 203 (for continuing students this course can be replaced by an elective).
- For students concentrating on homeroom teaching: EDUC 233, 268A, 268B
- For students concentrating on teaching language arts, English or Arabic, and social studies: EDUC 245, 251, 268C
- For students concentrating on teaching mathematics and science: EDUC 252, 257, 268D

Subject Matter Requirements

These include 24 credit-hours in courses numbered 200 or above distributed over two subject matter areas from the following combinations: a) Arabic and social studies, b) art and music, c) English and social studies, and d) mathematics and science. The mathematics and science courses offered by the

Department of Education (EDUC 271, EDUC 272, EDUC 273, EDUC 274) may be considered to satisfy part of the subject matter requirement in mathematics and science. EDUC 218 may be used to satisfy part of the subject matter requirements for language arts concentrations (Arabic–social studies and English–social studies).

Teaching Diploma in Secondary Education

Diploma Course Requirements

- EDUC 211 or 216
- EDUC 215
- EDUC 230
- Two methods courses from the sequence EDUC 237-256 plus one relevant course from the sequence EDUC 261-269
- An elective in education
- ENGL 203 (for AUB students this course can be replaced by an elective).

Subject Matter Requirements

Students must complete the requirements for a bachelor's degree in a subject matter area taught in elementary and/or secondary schools before they are granted this diploma. These areas include Arabic, English, health, informatics, math, science, and social studies. In case of a shift in major, students are required to complete a minimum of 24 credit-hours in the new subject matter area in courses numbered 200 or above.

Note: Only courses that are in areas taught in intermediate and secondary schools qualify for subject matter courses for the purposes of the teaching diploma.

Methods Courses

Methods courses at the secondary level are subject matter oriented; i.e., they deal with teaching a subject matter that has been chosen by students as a major field of specialization. The distribution is as follows:

EDUC 237, EDUC 238	Theories and Methods of Health Education
EDUC 241, EDUC 242	Teaching of Arabic
EDUC 243, EDUC 244	Teaching of English as a Foreign Language
EDUC 246, EDUC 248	Informatics Education
EDUC 249, EDUC 250	Teaching of Social Studies
EDUC 253, EDUC 254	Teaching of Math
EDUC 255, EDUC 256	Teaching of Sciences

In the case of students who are actual teachers in a recognized school, special arrangements may be made with the instructors of the methods courses to adjust field experience components in courses such as methods courses and practicum.

Admission to the Teaching Diploma Programs

New students should obtain an application from the Office of Admissions and apply as new students. Applications are reviewed by the department and, when accepted, students are classified as special students working for the teaching diploma. Completion of the bachelor's degree is a requirement for admission of new students to the teaching diploma programs. AUB students working for their bachelor's degree at AUB should complete a form no later than the first term in their junior year informing the Department of Education of their intent to complete the requirements for a diploma. Once notified the Department of Education will assign the students an academic adviser to help them generate a study plan to fulfill their diploma requirements.

Qualifications for the Teaching Diploma and Official Recognition by the Lebanese Government

Teaching Diploma in Elementary Education

Students qualify for the teaching diploma upon completion of the program of study as detailed above, attaining a cumulative average of 2.3 or above in its courses, and receiving the recommendation of the Department of Education. To receive an official recognition of the teaching diploma as equivalent to the license d'enseignement in elementary education, the candidates should meet the following:

- Hold the baccalaureate part II or equivalent.
- Completed the diploma requirements with 24 term credits over and above the total number required for a bachelor's degree.
- Completed a minimum of 45 term credits in the field of education.

Teaching Diploma in Secondary Education

Students qualify for the teaching diploma upon completion of the program of study as detailed above, attaining a cumulative average of 2.3 or above in its courses, and receiving the recommendation of the Department of Education. To receive an official recognition of the teaching diploma as equivalent to the license d'enseignement in education the candidates should meet the following:

- Hold the baccalaureate part II or equivalent.
- Have a bachelor's degree in a subject taught at the secondary level (Arabic, English, informatics, mathematics, science, and social studies).
- Completed the diploma requirements 24 term credits over and above the total number required for a bachelor's degree.

Diploma in Special Education

The special education diploma program is a 24-credit program designed to help students develop the skills, knowledge, and values needed to specialize in the teaching of children and youth with special educational needs with an emphasis on mild and high incidence exceptionalities: learning disabilities (LD) or giftedness and talent (G&T). Collaboration and consultation skills will be the cornerstone of the program.

Track One: Learning Disabilities

The learning disabilities (LD) track is designed to serve the needs of four groups: (1) Teachers who plan to participate in teaching students with learning disabilities in their schools in Lebanon or other Arab countries, (2) teachers who want to learn how to accommodate the weaknesses of LD students in their regular classrooms or other educational settings, (3) trainee teachers employed in non-school settings who want to know how to work with children and youth with learning disabilities, and (4) parents interested in the education of students with learning disabilities. The 24-credit program is designed to develop awareness, positive attitudes, and understanding about teaching students with learning disabilities, as well as competence in curriculum development, delivery, and evaluation.

Track Two: Gifted and Talented Education

The gifted and talented education track is designed to serve the needs of four groups: (1) Teachers who plan to participate in the education of identified gifted and talented students in their schools in Lebanon or elsewhere in the Arab world, (2) teachers who want to learn how to accommodate the unique needs of gifted and talented students in their regular classrooms, (3) trainee teachers employed in non-school settings who want to know how to work with gifted and talented children and youth, and (4) parents interested in gifted and talented education. The 24-credit program is designed to develop awareness, positive attitudes, and understanding about teaching gifted and talented students, as well as competence in curriculum development, delivery, and evaluation. For admission to special education diploma, students can enroll concurrently in a bachelor program or after completing the bachelor's degree. It is preferable if the students' undergraduate major is in education or in psychology, but students with other undergraduate majors may be considered. For successful completion of the program, students should achieve at least a cumulative GPA of 2.3. The program is composed of the following courses:

Table: Two Tracks of Emphasis in Special Education: Learning Disabilities (LD) or Gifted and Talented (G&T)

	Track 1: LD Emphasis Area		**Track 2: G&T Emphasis Area**	
Requirements	**Course**	**Course Field & term Hours**	**Course**	**Course Field & term Hours**
Core Courses	EDUC 215 EDUC 221 EDUC 222	3.0; 3 cr. 3.0; 3 cr. 3.0; 3 cr.	EDUC 215 EDUC 221 EDUC 222	3.0; 3 cr. 3.0; 3 cr. 3.0; 3 cr.
Method Courses (Area of Specialty)	EDUC 280 EDUC 281	2.2; 3 cr. 5.2; 6 cr.	EDUC 280 EDUC 282	2.2; 3 cr. 5.2; 6 cr.
	EDUC 283A	0.6; 3 cr.	EDUC 283B	0.6; 3 cr.
Elective	ENGL 203; or an Elective	3.0; 3 cr.	ENGL 203; or an Elective	3.0; 3 cr.
	Total	**24 cr.**	**Total**	**24 cr.**

Students can choose to pursue both areas of concentration, thereby completing a total of 30 credits.

Requirements (24 cr.)

- Basic courses (9 cr.): EDUC 215, EDUC 221, and EDUC 280
- Methods courses (12 cr.): EDUC 222, EDUC 281 or EDUC 282, and EDUC 283A or EDUC 283B
- ENGL 203 (for AUB students this course can be replaced by an elective)

Diploma in Educational Management and Leadership

The purpose of this diploma is to provide knowledge and practical training in the areas of educational management and leadership. Holders of this diploma are prepared to become managers of schools and educational training institutions and programs.

Requirements	
EDUC 211 or EDUC 216	EDUC 224
EDUC 212	EDUC 226
EDUC 213	EDUC 230
EDUC 214	
ENGL 203 (for AUB students this course can be replaced by an elective)	

For admission to diploma in educational management and leadership, students can enroll concurrently in a bachelor program or after completing the bachelor's degree. A minimum of one year of relevant professional experience in an educational setting is preferred. Students qualify for the diploma in educational management and leadership upon recommendation from the department and completion of the specified program of study with a cumulative GPA of 2.3 or above.

Course Descriptions

Non-Methods Courses

EDUC 211 The School and the Social Order 3.0; 3 cr.
A course on the importance of teaching as a profession in the larger context of social and cultural change; the manner in which teaching can influence the nature and direction of change; contrasts between advanced and developing countries. Annually.

EDUC 212 Educational Laws and Policies 3.0; 3 cr.
A course on the educational laws that govern public and private schools, including policies related to various educational levels, certification and equivalency issues, government approval, syllabi, book authorship, examinations, and educational plans. Annually.

EDUC 213 Introduction to Educational Administration 3.0; 3 cr.
A survey of various aspects of educational administration, with emphasis on leadership theories and organizational structure, functions, and responsibilities of educational administrators, and public control of education. Annually.

EDUC 215 Learning and Human Development 3.0; 3 cr.
An introduction to instructional theory, the nature of intelligence, child development, learning and behavior management, with an emphasis on the basic implications for classroom teaching. Annually.

EDUC 216 Philosophy of Education 3.0; 3 cr.
A review of the development of educational thought as expressed in the writings and ideas of major philosophers. This review endeavors to deal with thought in the context of the historical times. Arab thought is included. Annually.

EDUC 217 Measurement and Evaluation for Classroom Teachers 3.0; 3 cr.
An introduction to and practice in the construction, use, and interpretation of classroom tests. Prerequisite: EDUC 215. Annually.

EDUC 218 Children's Literature 3.0; 3 cr.
A study of the diverse elements of ancient and modern children's literature. Topics include poetry, fairy tales, epics, myths and legends, fantasy, fiction, and illustrated stories. The skill of using literature effectively with children is particularly stressed. Annually.

EDUC 219 The Use of Computer Applications in Education 2.2; 3 cr.
This course examines how to use technology to support teaching and learning. This course is designed to prepare students to integrate a variety of computer-based technologies into the K-12 curriculum such as Web 2.0 (blogs, wikis, google apps), spreadsheets, and slideshows implemented through lesson activities. Students can receive credit for only one of CMPS 206, CMPS 209, or EDUC 219. Annually.

EDUC 220 Instructional Media and Techniques 2.2; 3 cr.
This course explores the use of Interactive White Boards (IWBs) and other interactive instructional media techniques in education. This course will equip students with knowledge and skills to create effective and interactive lessons and activities that enhance teaching and learning. Media techniques and principles are implemented through activities and projects appropriate to use for all majors. Annually.

EDUC 221 Introduction to Special Education 3.0; 3 cr.
An introduction to special education and the various categories of exceptionality, including nature, causes, educational characteristics of children with intellectual disabilities, learning disabilities, emotional and behavioral disturbance, communication disorders, visual impairment, hearing impairment, physical disabilities, autism spectrum disorder, and giftedness. Annually.

EDUC 223 Introduction to Guidance and Counseling 3.0; 3 cr.
An introduction to the field of guidance and counseling. The role of the counselor in school and community settings is emphasized. Annually.

EDUC 225 Child and Adolescent Development 3.0; 3 cr.
A chronological study of typical and atypical cognitive, linguistic, emotional, and physical development from the prenatal period through adolescence. The relative influences and interactions of heredity and environment, and the impact of development on learning and school success are examined. Students who receive credit for EDUC 225 cannot receive credit for PSYC 210. Annually.

EDUC 226 Personnel Management and Development 3.0; 3 cr.
A course on personnel policies and procedures; recruitment, salary scales, benefits, promotions and pension plans; job description and evaluation; organizing the personnel department; training and development of human resource programs in educational institutions. Annually.

EDUC 227 Statistics in Education 3.0; 3 cr.
A course on descriptive statistics, correlation, prediction, and statistical inference as applied to educational situations. Students who receive credit for this course cannot receive credit for any other introductory statistics course, such as STAT 201, STAT 210, STAT 230, MATH 233, or ECON 213. Annually.

EDUC 230 Instructional Procedures 3.0; 3 cr.
An introduction to instructional planning, teaching strategies, classroom management, and evaluation procedures. Annually.

EDUC 231 Reading Instruction in the Elementary School 3.0; 3 cr.
A course on trends, theories, and practices in the teaching and evaluation of reading in the elementary school; alternative teaching/learning strategies for developing readiness, comprehension, and evaluation of progress in reading. Annually.

EDUC 232 Classroom Management in the Elementary School 3.0; 3 cr.
This course explores classroom management concepts, terminology, approaches, and strategies. Students analyze issues related to classroom organization and governance through the use of case studies. The course presents theories of classroom management. Topics are based on behavioral modification and classroom management systems. Annually.

EDUC 247 Computer-Based Instructional Packages 2.2; 3 cr.
A course on the design and production of computer-based educational packages using multimedia and hypermedia techniques. Students are expected to use digital technology to produce applications that are deliverable through the internet, CD-ROMs, or other digital media. Annually.

EDUC 271 Problem Solving in Arithmetic and Algebra 3.0; 3 cr.
A course that focuses on using problem solving as an integral constituent of mathematics teaching in elementary and intermediate school mathematics. The purpose of the course is to support students in developing a deep understanding of mathematical concepts and procedures in arithmetic and algebra. Annually.

EDUC 272 Problem Solving in Probability, Statistics, and Geometry 3.0; 3 cr.
A course that focuses on using problem solving as an integral constituent of mathematics teaching in elementary and intermediate school mathematics. The purpose of the course is to support students in developing a deep understanding of mathematical concepts and procedures in probability, statistics and geometry. Annually.

EDUC 273 Science for Elementary Teachers I 3.0; 3 cr.
An in-depth study of science concepts and skills in pre-secondary science curricula. Annually.

EDUC 274 Science for Elementary Teachers II 3.0; 3 cr.
An in-depth study of science concepts and skills in pre-secondary science curricula. Annually.

EDUC 275 Learning in and through Gaming 3.0; 3 cr.
This course examines the connections between learning and gaming. It examines what is, or can be, learned through playing computer games including physical and social concepts and historical narratives. It also examines the learning principles underlying game design. Through the course, students learn about the positive affordances of computer games but also learn to adopt a critical perspective on game content and design. Occasionally.

EDUC 290 Special Topics 1.0-3.0; 1-3 cr.
A course that deals with special issues and concerns not included in regular courses. The following examples are taken from topics given during the last few years: Music for elementary teachers, visual arts for elementary teachers, and trends in early childhood education. May be repeated for credit. Annually.

EDUC 291 Senior Seminar (Issues in Elementary Education) 3.0; 3 cr.
A seminar intended for majors in elementary education that focuses on one or more current issues in elementary education. Annually.

EDUC 292 Senior Seminar (Education in Arab Countries) 3.0; 3 cr.
A seminar intended for majors in education that focuses on educational issues in one or groups of Arab countries. Annually.

Methods Courses

EDUC 214 Management in Practice 1.4; 3 cr.
A course on managing, planning and organizing, and personnel management; supervised training at AUB and practical experiences in schools and other institutions, such as hospitals, technical institutions, colleges, and universities under the supervision of the course instructor and professional practitioners. Prerequisite: EDUC 213. Annually.

EDUC 222 Introduction to Assessment in Special Education 3.0; 3 cr.
An introduction to theory and uses of assessment techniques and instruments in special education. Emphasis is placed on educational implications for learners with special needs. Pre/corequisite: EDUC 221. Annually.

EDUC 224 Instructional Supervision 1.4; 3 cr.
Workshops in supervision methods at AUB and practical skills in schools and other educational institutions, supervised by the course instructor and professionals in the field; approaches to instructional supervision for the generalist and specialist supervisor; communicating, motivating, evaluating, and monitoring of staff and professionals; promoting individual and group development, and overseeing curriculum development. Annually.

EDUC 228 The Teaching of Art in Elementary School 2.2; 3 cr.
A course on the theory and practice in teaching visual art in the elementary school with observation and practice teaching in classrooms. Corequisite: EDUC 230. Annually.

EDUC 229 The Teaching of Music in Elementary School 2.2; 3 cr.
A course on the development of students' basic skills in music (general vocal and instruments), combined with a study of source materials in the teaching of music. This course also includes observation and practice teaching in classrooms. Corequisite: EDUC 230. Annually.

EDUC 233 Methods of Homeroom Teaching 2.2; 3 cr.
This course prepares homeroom teachers for taking overall class responsibility as well as teaching the main areas of the primary school curriculum. Topics include language arts, science, mathematics, and social studies teaching methods and activities. There is also focus on classroom organization, planning of teaching and learning, resource selection and management, and assessment and evaluation. Corequisite: EDUC 232. Annually.

EDUC 237 Theories and Methods of Health Education I 2.2; 3 cr.
An introduction to the major theories of health behavior and health promotion. Emphasis is placed on the application of health behavior theories to health promotion and education practice. Students cannot receive credit for both EDUC 237 and HCPH 237. Corequisite: EDUC 230. Annually.

EDUC 238 Theories and Methods of Health Education II 1.4; 3 cr.
An introduction to the assumptions we make about communication and key elements of the communication process. This course deals with factors that inhibit communication as well as some of the functions of communication as they relate to increasing positive health behavior and group effectiveness. This course aims at enhancing writing and oral presentation skills as well as effective interaction skills with peers and supervisors at work. Cross-listed as HCPH 203, Communication for Health Professionals. Students cannot receive credit for both EDUC 238 and HCPH 203. Prerequisite: EDUC 237. Annually.

EDUC 240 The Teaching of Arabic in Elementary Schools 2.2; 3 cr.
A course on the theory and practice in methods of teaching Arabic in elementary schools with observation and practice teaching in classrooms. Corequisite: EDUC 230. Annually.

EDUC 241 The Teaching of Arabic I 2.2; 3 cr.
A course on theory and method of teaching Arabic language and literature at the secondary level, with emphasis on new approaches. Corequisite: EDUC 230. Annually.

EDUC 242 The Teaching of Arabic II 1.3; 3 cr.
A practicum of classroom observation and supervised practice teaching of Arabic language and literacy at the secondary level. Prerequisite: EDUC 241. Annually.

EDUC 243 The Teaching of English as a Foreign Language (TEFL) I 2.2; 3 cr.
A course on theoretical background and approaches to the teaching of English as a foreign/ second language; principles and techniques of teaching the basic language skills; includes classroom observation and micro teaching practices. Corequisite: EDUC 230. Annually.

EDUC 244 The Teaching of English as a Foreign Language II 1.4; 3 cr.
A course on the preparation and evaluation of teaching materials through individual and group projects; guided and supervised practice teaching in schools. Prerequisite: EDUC 243. Annually.

EDUC 245 The Teaching of Language Arts (English or Arabic) in Elementary School 2.2; 3 cr.
A course on theoretical background and approaches to the teaching of language arts (English or Arabic) in the elementary school; principles and methods of teaching the language skills; includes classroom observation and micro teaching practices. Corequisite: EDUC 232.

EDUC 246 Computer Programming at the School Level 2.2; 3 cr.
A course that explores computer programming techniques suitable for teaching Informatics and other subject matters at the school level. This course includes cognitive theoretical background and practical work. Special emphasis is placed on the use of programming as a means to promote thinking skills. Corequisite: EDUC 219 or EDUC 220. Annually.

EDUC 248 Methods for Teaching Informatics 2.2; 3 cr.
A course on concepts, trends, and skills needed to design and teach curriculum materials for informatics education; analysis and evaluation of informatics curriculum; methods and techniques of teaching informatics at the school level; includes demonstrations and observation of actual computer lab sessions. Prerequisite: EDUC 246. Annually.

EDUC 249 The Teaching of Social Studies I 2.2; 3 cr.
A course on approaches to the teaching of history, geography, and civics; adaptation of social science concepts and generalizations to the secondary level. Corequisite: EDUC 230. Annually.

EDUC 250 The Teaching of Social Studies II 1.4; 3 cr.
A practicum of classroom observation and supervised practice teaching of social science, or history, geography, and civics in neighboring schools. Prerequisite: EDUC 249. Annually.

EDUC 251 The Teaching of Social Studies in Elementary School 2.2; 3 cr.
A course on the theory and practice in methods of teaching history, geography, and civic education in elementary school, with observation and practice teaching. Corequisite: EDUC 232. Annually.

EDUC 252 The Teaching of Mathematics in Elementary School 2.2; 3 cr.
A course on the theory and practice in methods of teaching mathematics in elementary school, with observation and practice teaching. Corequisite: EDUC 232. Annually.

EDUC 253 The Teaching of Mathematics I 2.2; 3 cr.
A course on the pedagogical and mathematical basis of various approaches in mathematics teaching in middle and secondary schools; includes demonstrations, classroom observation, and applications. Corequisite: EDUC 230. Annually.

EDUC 254 The Teaching of Mathematics II 1.4; 3 cr.
An analysis and preparation of teaching/learning materials, plans, and tests for mathematics teaching, including supervised practice teaching and individual and group meetings. Prerequisite: EDUC 253. Annually.

EDUC 255 The Teaching of Science I 2.2; 3 cr.
A course on the nature of science and its implication in teaching; critical study of various science teaching techniques; survey and practice in the utilization of instructional materials. Corequisite: EDUC 230. Annually.

EDUC 256 The Teaching of Science II 1.4; 3 cr.
A review of various science curriculum projects and programs; curriculum planning, micro-teaching, and practicum in classroom observation and teaching. Prerequisite: EDUC 255. Annually.

EDUC 257 The Teaching of Science in Elementary School 2.2; 3 cr.
A course on the theory and practice in methods of teaching science in the elementary school, with observation and practice teaching. Corequisite: EDUC 232. Annually.

EDUC 261 Practicum in TEFL in Secondary School 0.6; 3 cr.
Observation and practice in classroom situations under the guidance of university course instructors and cooperating schoolteachers. Prerequisite: EDUC 243. Annually.

EDUC 262 Practicum in Teaching Math in Secondary School 0.6; 3 cr.
Observation and practice in classroom situations under the guidance of university course instructors and cooperating schoolteachers. Prerequisite: EDUC 253. Annually.

EDUC 263 Practicum in Teaching Science in Secondary School 0.6; 3 cr.
Observation and practice in classroom situations under the guidance of university course instructors and cooperating schoolteachers. Prerequisite: EDUC 255. Annually.

EDUC 264 Practicum in Health Education 0.6; 3 cr.
Observation and practice in classroom situations under the guidance of university course instructors and cooperating schoolteachers. Prerequisite: EDUC 237. Annually.

EDUC 265 Practicum in Teaching Arabic in Secondary School 0.6; 3 cr.
Observation and practice in classroom situations under the guidance of university course instructors and cooperating schoolteachers. Prerequisite: EDUC 241. Annually.

EDUC 266 Practicum in Teaching Social Studies in Secondary School 0.6; 3 cr.
Observation and practice in classroom situations under the guidance of university course instructors and cooperating schoolteachers. Prerequisite: EDUC 249. Annually.

EDUC 268A Practicum in Elementary School (Homeroom Teaching) I 0.6; 3 cr.
Application of theories and development of homeroom materials and assessment. Guided and supervised homeroom teaching in schools. Prerequisites: EDUC 232, EDUC 233. Annually.

EDUC 268B Practicum in Elementary School (Homeroom Teaching) II 0.6; 3 cr.
Observation and practice in homeroom situations under the guidance of university course instructors and cooperating schoolteachers. Prerequisites: One of EDUC 233, EDUC 268A. Annually.

EDUC 268C Practicum in Elementary School (Language Arts/Social Studies) 0.6; 3 cr.
Observation and practice in classroom situations under the guidance of university course instructors and cooperating schoolteachers. Prerequisites: EDUC 245, EDUC 251. Annually.

EDUC 268D Practicum in Elementary School (Mathematics/Science) 0.6; 3 cr.
Observation and practice in classroom situations under the guidance of university course instructors and cooperating schoolteachers. Prerequisites: EDUC 252, EDUC 257. Annually

EDUC 269 Practicum in Teaching Informatics 0.6; 3 cr.
Observation and practice in classroom situations under the guidance of university course instructors and cooperating schoolteachers. Prerequisite: EDUC 246. Annually.

EDUC 280 Behavior Modification and Classroom Management 3.0; 3 cr.
The application and analysis of behavior change techniques with exceptional learners in various educational settings. Theories and applications of individual and group behavior management plans are emphasized. Pre/corequisite: EDUC 221. Annually.

EDUC 281 Learning Disabilities: Concepts, Identification, and Program Development 5.2; 6 cr.
Current theories, identification models and instructional practices are analyzed and implemented into newly developed and/or existing interdisciplinary units of instruction that provide differentiated learning for students with learning disabilities. Prerequisite: Either EDUC 221 or EDUC 222. Pre/corequisite: EDUC 280. Annually.

EDUC 282 Gifted and Talented Learners: Concepts, Identification, and Program Development 5.2; 6 cr.
Current theories, identification models and instructional practices are analyzed and implemented into newly developed and/or existing interdisciplinary units of instruction that provide differentiated learning for gifted and talented students. Prerequisite: Either EDUC 221 or EDUC 222. Pre/corequisite: EDUC 280. Annually.

EDUC 283A Practicum in Special Education 0.6; 3 cr.
Supervised teaching experience to develop and demonstrate teaching competence for children with learning disabilities. Corequisite: EDUC 281 or EDUC 282. Second term. Annually.

EDUC 283B Practicum in Special Education 0.6; 3 cr.
Supervised teaching experience to develop and demonstrate teaching competence for gifted and talented children. Corequisite: EDUC 281 or EDUC 282. Second term. Annually.

Department of English

Chairperson	Avant, Doyle Rexford
Professors	Choueiri, Lina; Hout, Syrine; Mejcher-Atassi, Sonja; Myers, Robert; Shaaban, Kassim
Associate Professors	Ali, Tariq Mehmood; Avant, Doyle Rexford; Gonsalves, Joshua David; Khayyat, Yasmine
Assistant Professors	Ard-Keyser, Devan; Dasgupta, Sreemoyee; Neiderman, Halle Michelle; Sfeir, Maya
Senior Lecturers	Harb, Sirene; Nassar, Christopher
Lecturers	Ard-Keyser, Emily; Ezzeddine, Maya; Itani, Layla; Johnson, Stacey Anne; Raad, Joanna; Rantisi, Rima; Salame, Eliane; Shweiry, Zein; Shweiry, Zinnia
Instructors	Abouchala, Nour; Adra, May; Al Ayash, Randa; Al-Sayyed, Amany; Andary, Layl; Awad, Frida; Awwad, Ilsa; Ayoubi, Rola; Baalbaki, Rula; Bohsali, Rana; Chehade, Jinane; Danaoghlian, Gacia; Deeb, Rima; Elias, Charline; El-Sakalaoui, Dima; Fleszar, Dorota; Hafez, Maria; Hemadeh, Ruba; Hodeib, Heba; Ibrahim, Rita Maria; Iskandarani, Rima; Issa, Leila; Jaber, Nagham; Jannoun, Jihan; Karakazian, Helena; Kassem Moussa, Fatima; Khoury, Malaki; Kodeih, Rabab; Maalouf, Maya Berta; Maktabi, Sawsan; Matta, Elie; Mikati, May; Morcos, Hiba; Moujaes, Omar; Moutchoyan, Anita; Nasr, Jana; Obeid, Doaa; Riman, Souha; Shadid, Rima; Shaer, Farah; Sleiman, Tamara; Tabet, Jad; Zreik, Hassan
Artist in Residence	Bou Rjeily, Lucien

Communication Skills Program

Director of Communication Skills	Khoury, Malaki
Assistant Director of Communication Skills	Deeb, Rima
Lecturers	Salame, Eliane; Shweiry, Zein
Instructors	Andary, Layl; Awad, Frida; Awwad, Ilsa; Ayoubi, Rola; Baalbaki, Rula; Bohsali, Rana; Chehade, Jinane; Danaoghlian, Gacia; Deeb, Rima; Elias, Charline; El-Sakalaoui, Dima; Fleszar, Dorota; Hafez, Maria; Hemadeh, Ruba; Hodeib, Heba; Ibrahim, Rita Maria; Iskandarani, Rima; Issa, Leila; Jaber, Nagham; Jannoun, Jihan; Karakazian, Helena; Kassem Moussa, Fatima; Khoury, Malaki; Kodeih, Rabab; Maalouf, Maya Berta; Maktabi, Sawsan; Matta, Elie; Mikati, May; Morcos, Hiba; Moujaes, Omar; Moutchoyan, Anita; Nasr, Jana

Department Course Offerings

The English Department offers courses in English language, English literature, literature in translation, visual and digital culture, and creative writing. The department also offers communication skills courses which are part of the university general education requirements.

Undergraduate Degrees

The English Department offers two undergraduate degree programs: the BA in English literature and the BA in English language.

Degree Requirements

A BA degree in language or literature requires 90 credits for students entering their major as sophomores. The distribution requirements for these credits are explained in the following sections.

Major Courses

39 credits in courses listed under literature (BA in English literature) or language (BA in English language), with no more than 6 credits in the form of creative writing courses (i.e. ENGL 239, ENGL 264, ENGL 297, or courses in the range ENGL 249-254).

English Literature BA Course Requirements

The requirements for literature majors are as follows:

- ENGL 205 English Literature I
- ENGL 207 English Literature II
- ENGL 209 Survey of American Literature
- ENGL 212 Shakespeare
- ENGL 221 Introduction to Literary Theory
- ENGL 229 History of the English Language
- ENGL 238 Academic Writing for English Majors
- One comparative literature course chosen from ENGL 240-243
- ENGL 292 Capstone Seminar, which must be taken in the senior year
- Four additional courses chosen from among those numbered ENGL 210 to 297, excluding 293

The recommended sequence for literature majors is:

- ENGL 203 at the earliest opportunity
- ENGL 205, ENGL 207, ENGL 209, and ENGL 229 in the first year of study
- ENGL 221 preferably in the second year, and only after completing ENGL 203
- ENGL 238 in the immediate next term after taking ENGL 204
- ENGL 292 must be taken in the senior year

English Language BA Course Requirements

The requirements for language majors are as follows:

- ENGL 227 Introduction to Language
- ENGL 228 Phonetics
- ENGL 229 History of English Language
- ENGL 230 Language in Society or ENGL 232 Language Acquisition
- ENGL 238 Academic Writing for English Majors
- ENGL 231 English Grammar or ENGL 294 Special Topics in Grammar
- Three additional courses chosen from among the department's language offerings
- ENGL 212 Shakespeare
- Two courses chosen from ENGL 205 English Literature I, ENGL 207 English Literature II and ENGL 209 Survey of American Literature
- One additional course can be chosen from among the department course offerings, including creative writing courses

Teaching Diploma Courses

Both literature and language majors may also take courses leading to the teaching diploma. The requirements for the teaching diploma are specified under the Department of Education catalogue section.

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits). At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Electives

Both literature and language majors are required to take 12 credits of free electives.

Requirements for Acceptance to English BA Programs

Students wishing to major in language or literature are accepted provisionally until they have achieved a grade of C+ or more in ENGL 203 (Academic English) and ENGL 204 (Advanced Academic English) and in two of the four introductory courses: ENGL 205 (English Literature I), ENGL 207 (English Literature II), ENGL 209 (Survey in American Literature) and ENGL 227 (Introduction to Language). Normally, the courses may be repeated only once.

English Minors

The department offers minors in language, literature, creative writing, translation, theater, and gender studies. An American studies minor is housed in the Center for American Studies and Research (CASAR), a film and visual culture minor is housed in the Department of Media Studies, and a gaming minor is housed in the Department of Computer Science.

Minor in English Literature

A minor in English literature requires 15 credits. Two core courses from among the following:

- ENGL 205 English Literature I
- ENGL 207 English Literature II
- ENGL 209 Survey of American Literature
- One comparative literature course from ENGL 240-243
- And any two courses from the different categories of the literature curriculum

Minor in English Language

A minor in English language requires 15 credits:

- ENGL 227 Introduction to Language
- Four other courses chosen from the department's Language offerings

Minor in Creative Writing

A minor in creative writing requires 15 credits. Three courses chosen from the following:

- ENGL 239 Screenwriting
- ENGL 249 Fiction Writing
- ENGL 250 Poetry Writing
- ENGL 251 Playwriting
- ENGL 252 Creative Nonfiction
- ENGL 253 Cultural Writing
- ENGL 254 Special Topics in Creative Writing
- ENGL 264 Fiction Writing for Video Games

Two 200-level courses chosen from among the following: ENGL 236, any course listed under Literature but not including those specified above, and any course in creative writing offered by the Department of Arabic and Near Eastern Languages.

Minor in Translation

A minor in translation, in collaboration with the Department of Arabic and Near Eastern Languages, requires the following:

- ARAB 225 Translation
- ENGL 233 Introduction to Translation

Three courses chosen from the following:

- ARAB 211 Survey of Arabic Grammar
- ARAB 212 Survey of Arabic Grammar
- ARAB 226 Translation
- ARAB 227 Arabic Linguistics
- ARAB 228 Arabic Linguistics
- ENGL 221 Intro to Literary Theory
- ENGL 231 English Grammar or 294 Advanced Topics in Grammar
- One comparative literature course from ENGL 240-243.
- ENGL 247 Discourse Analysis
- ENGL 255 Literatures in Translation - any letter(s)
- ENGL 262 Advanced Topics in Translation – any letter(s)
- Any course offered by the Department of English with a significant translation studies component, with approval of the chair

Minor in Theater

A minor in theater requires 15 credits. One of the following options, representing 6 credits, is required:

- THTR 259 Workshop in Theater Production
- THTR 250 Workshop in Stage Directing & THTR 221 Workshop in Stage Acting

Remaining credits may be taken from among the following courses:

- Any courses with the THTR prefix (see the full list under Theater Program)
- ARAB 240 Modern Arabic Drama
- CHLA 263 Modern and Contemporary World Theater
- ENGL 212 Shakespeare
- ENGL 216 Drama
- ENGL 251 Playwriting
- Any course that significantly addresses theater, performance, or dramatic literature, with approval of the chair

Minor in Gender Studies

A minor in gender studies requires 15 credits. from any of the following courses:

- ENGL 234 Gender and Language
- ENGL 258 (any letter) Gender and Sexuality
- EPHD 334 Reproductive Health
- HIST 262 Gender in Classical Islamic Society
- HPCH 202 Sexuality and Public Health
- SOAN 225 Gender and Culture
- Special Topics, seminars, and/or course sections with emphases on Gender, Sexuality, and/or Women's Studies – with approval of the Chair of the Department of English

Course Descriptions

Communication Skills Courses

Please check https://www.aub.edu.lb/fas/english/Commskills/Pages/Placement.aspx for placement requirements for all Communication Skills Courses.

ENGL 100 (A & B) Intensive English Courses 0.0; 0 cr.
An integrated skills course that develops students' linguistic and communicative competence in preparation for a full-time university program. A broad range of activities and readings in various disciplines exposes students to campus culture and university-level discourse. Through regular practice in oral and written activities, students develop appropriate and effective expression in English.

ENGL 102 Enrichment Course in English 3.0; 3 cr.
This course develops critical thinking and oral and written fluency through close reading, analysis, and responses to academic texts. Special attention is given to identifying arguments and rhetorical devices as well as applying appropriate conventions of grammar, mechanics, and usage. Every term.

ENGL 203 Academic English 3.0; 3 cr.
This course introduces students to the demands of critical reading and writing college level texts. Through a recursive process of exploration, discovery, and writing, students develop ownership of texts and practice their voice to compose a documented synthesis. Every term.

ENGL 204 Advanced Academic English 3.0; 3 cr.
This course provides training in writing analyses, syntheses and critiques of advanced college-level texts. Throughout the term, students polish their research skills by examining and evaluating different aspects of argumentation. The course culminates in an argumentative research paper. Prerequisite: ENGL 203. This course does not count towards graduation for students in MSFEA. Every term.

ENGL 206 Technical English 3.0; 3 cr.
This course immerses engineering students in the best practices of technical communication for their discipline. It focuses on making complex information accessible to different audiences while emphasizing evidence-based argumentation appropriate for specific contexts. Special attention is given to style, conventions, the recursive technical writing process, research methodology, and collaboration. Prerequisite: ENGL 203. For students in MSFEA only. Every term.

Literature Courses

ENGL 101 Introduction to Literature 3.0; 3 cr.
An introduction for freshman students to literature in English. Readings may vary from term to term. Pre/corequisite: ENGL 203 or ENGL 204, based on placement. Occasionally.

ENGL 103 Introduction to Drama 3.0; 3 cr.
An introduction for freshman students to drama in English. The course focuses on a selection of major playwrights from different periods. Readings may vary from term to term. Pre/corequisite: ENGL 203 or ENGL 204, based on placement. Occasionally.

ENGL 104 Introduction to Poetry 3.0; 3 cr.
An introduction for freshman students to poetry in English. The course focuses on a variety of authors and periods and contexts. Readings may vary from term to term. Pre/corequisite: ENGL 203 or ENGL 204, based on placement. Occasionally.

ENGL 105 Introduction to American Literature 3.0; 3 cr.
An introduction for freshman students to American writing from the colonial period to the present. Readings may vary from term to term. Pre/corequisite: ENGL 203 or ENGL 204, based on placement. Occasionally.

ENGL 106 Introduction to World Literature 3.0; 3 cr.
An introduction to non-British and non-American literatures in English. Readings may vary from term to term. Pre/corequisite: ENGL 203 or ENGL 204, based on placement. Occasionally.

ENGL 109 Introduction to Creative Writing 3.0; 3 cr.
An introduction to various forms of creative writing for freshman. Students will produce a portfolio of original work. Prerequisite: Freshman status; pre/corequisite: ENGL 203 or ENGL 204, based on placement. Students may not receive credit for both ENGL 109 and ENGL 236. Occasionally.

ENGL 205 English Literature I 3.0; 3 cr.
A course that covers major literary works from the early medieval period to the late eighteenth century. Readings may vary from term to term. Pre/corequisite: ENGL 203 or higher, based on placement. Every term.

ENGL 207 English Literature II 3.0; 3 cr.
A course that covers major works of literature from Romanticism to the contemporary period. Readings may vary from term to term. Pre/corequisite: ENGL 203 or higher, based on placement. Every term.

ENGL 209 Survey of American Literature 3.0; 3 cr.
A course that covers major works of American literature and a broad range of writers. Readings may vary from term to term. Pre/corequisite: ENGL 203 or higher, based on placement. Every term.

ENGL 210 (A, B, C, D, E…) Literature of the Middle Ages 3.0; 3 cr.
A course covering major works of medieval literature, with attention to both form and cultural context. Some attention to the original language may be given. Readings may vary from term to term. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 211 (A, B, C, D, E…) Early Modern Literature 3.0; 3 cr.
A course that covers major works of sixteenth and seventeenth-century literature, with attention to both form and cultural context. Readings may vary from term to term. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 212 Shakespeare 3.0; 3 cr.
A course that covers several representative plays by Shakespeare, with attention to form, cultural context and the theatrical practices of the period. Some attention to Shakespeare's poetry or adaptation may be given. Readings may vary from term to term. Prerequisite: ENGL 203 or higher, based on placement. Every term.

ENGL 213 (A, B, C, D, E...) Neo-Classical and Romantic Age 3.0; 3 cr.
A course that covers major works of eighteenth and early nineteenth-century literature, with attention to both form and cultural contexts. Readings may vary from term to term. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 214 (A, B, C, D, E…) Victorian Literature 3.0; 3 cr.
A course that covers major works of the Victorian period, with attention to both form and cultural context. Readings may vary from term to term. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 215 (A, B, C, D, E…) Twentieth-Century Literature 3.0; 3 cr.
A course that covers major works of the twentieth century largely within the Anglophone world, with attention to both form and cultural context. Readings may vary from term to term. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 216 Drama 3.0; 3 cr.
A course that covers a variety of dramatic forms from the modern and contemporary Anglophone world, with attention to form and cultural context. Readings may vary from term to term. Prerequisite: ENGL 203 or higher, based on placement. Occasionally.

ENGL 217 The Novel 3.0; 3 cr.
A course that covers theories of the novel as well as literary examples from the eighteenth century to the present, largely in the Anglophone world, with attention to genre, form, and social context. Readings may vary from term to term. Prerequisite: ENGL 203 or higher, based on placement. Occasionally.

ENGL 218 Poetry 3.0; 3 cr.
A course that covers a variety of poetic forms from across all periods, largely in the Anglophone world, with attention to form and cultural context. Readings may vary from term to term. Prerequisite: ENGL 203 or higher, based on placement. Occasionally.

ENGL 219 Film as Text 3.0; 3 cr.
A course that covers a variety of cinematic forms, with attention to both the technical components of film and to cultural context. Prerequisite: ENGL 203 or higher, based on placement. Annually.

ENGL 220 (A, B, C, D, E…) Contemporary Anglophone Literature 3.0; 3 cr.
A course that covers significant works of recent times in the Anglophone world. Readings vary from term to term, but might include settler colonial literatures, literatures of the Middle East, Africa, the Caribbean, global south, or south Asian world. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 221 Introduction to Literary Theory 3.0; 3 cr.
A course that covers significant movements in the history of literary theory, with emphasis on the application of different theoretical schools in contemporary literary and cultural analysis. Prerequisite: ENGL 203 or higher, based on placement; and English major status or permission of instructor. Every term.

ENGL 222 (A, B, C, D, E…) Literature and Cultural Studies 3.0; 3 cr.
A course that examines works of literature in relation to emergent trends in cultural studies. Approach will vary from term to term, but might include Marxism and cultural materialism, biopolitics and disability, animal studies and posthumanism. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 223 (A, B, C, D, E…) Literature and Science 3.0; 3 cr.
A course that examines literary texts, and the discipline of literature in relation to the history and various disciplines of science. Readings may vary from term to term, but might include literature and scientific research, scientific discovery, or technology. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 224 (A, B, C, D, E…) Early American Literature 3.0; 3 cr.
A course that covers pre-twentieth-century American literature, with particular emphasis on relationships between form and cultural context. Readings may vary from term to term. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 225 (A, B, C, D, E…) Modern American Literature 3.0; 3 cr.
A course that covers American texts from the modern period with attention to form and cultural context. Readings may vary from term to term. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 226 (A, B, C, D, E…) Contemporary American Literature 3.0; 3 cr.
A course that covers developments in contemporary American literature, with attention to form and cultural context. Readings may vary from term to term. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 236 Creative Writing 3.0; 3 cr.
A workshop-based course in which students read and write in a variety of creative genres. The course will cover at least three of the major genres (fiction, nonfiction, poetry, drama) as well as subgenres such as graphic narratives, literary journalism, flash, and others. Every term. Students may not receive credit for both ENGL 109 and ENGL 236.

ENGL 239 Screenwriting 3.0; 3 cr.
A workshop-based course that covers the artistic and technical aspects of screenwriting. Students will produce short, original screenplays. Occasionally.

ENGL 240 (A, B, C, D, E…) Literature and Empire 3.0; 3 cr.
A course that focuses on relationships between imperial formations and literary cultures in comparative historical perspective. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 241 (A, B, C, D, E…) Transnational Literatures 3.0; 3 cr.
A course featuring networks of literary texts emerging from different locales with an emphasis on historical contexts of migration, diaspora and crisis. Prerequisite: ENGL 203 or higher, based on placement Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 242 (A, B, C, D, E…) World Literature 3.0; 3 cr.
A course that covers significant texts from different origins, time periods, and genres as well as their resonance in global contexts via translation, adaptation and rewriting. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 243 (A, B, C, D, E…) Postcolonial Literature 3.0; 3 cr.
A course that examines the relationships between literature and imperialism, exploring literary and theoretical texts that have emerged in and about the global south in the era following colonization. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 244 (A, B, C, D, E…) Special Topics in Literature 3.0; 3 cr.
A course that varies in content and focuses on a topic not currently covered in the curriculum. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 249 Fiction Writing 3.0; 3 cr.
A workshop-based course that covers key elements in writing fiction. Students will produce a body of original fiction. Occasionally.

ENGL 250 Poetry Writing 3.0; 3 cr.
A workshop-based course that covers a variety of poetic styles across cultures and traditions. Students will produce a collection of original poems. Occasionally.

ENGL 251 Playwriting 3.0; 3 cr.
A workshop-based course that covers that artistic and technical aspects of playwriting. Students will write original one-act plays to be staged. Occasionally.

ENGL 252 Creative Nonfiction 3.0; 3 cr.
A workshop-based course that explores the vast genre of creative nonfiction and its subgenres including the personal essay, memoir, literary journalism, and others. Students will produce original works. Occasionally.

ENGL 253 Cultural Writing 3.0; 3 cr.
A workshop-based course that covers cultural writing as a form of creative prose. Students will produce a collection of original reviews of performance and the literary arts. Occasionally.

ENGL 254 (A,B,C…) Special Topics in Creative Writing 3.0; 3 cr.
A course that focuses on a special theme, genre, or topic outside the regular creative writing offerings. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 255 (A, B, C, D, E…) Literatures in Translation 3.0; 3 cr.
A course focusing on a body of literature in English translation, with particular focus on form and cultural context. Approach may vary from term to term. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 256 (A, B, C, D, E…) Digital Culture 3.0; 3 cr.
A course that covers elements of digital culture and emergent means of analysis. Approach will vary from term to term, but might include digital storytelling, text mining, augmented reality, electronic literature, spatial analysis or new media. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 257 (A, B, C, D, E…) Visual Culture 3.0; 3 cr.
A course that explores the relations between literature and emergent trends in visual culture. Materials may vary from term to term, but might include film, television, web series, photographic narrative, performance art and video art. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 258 (A, B, C, D, E…) Gender and Sexuality 3.0; 3 cr.
A course that examines works of literature in relation to contemporary theories of gender and sexuality. Emphases will vary from term to term, but may include third world feminisms, queer and post-queer theory, affect theory, rhetorics of the body, and new materialist approaches. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 259 (A, B, C, D, E…) Topics in Rhetoric 3.0; 3 cr.
A course that explores the history of rhetoric, rhetorical theory, and rhetoric's linkages with other discourses--from literary studies and linguistics to politics, social theory, visual culture, and digital and other media. Readings will draw upon both western and non-western traditions, with emphasis varying by term. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 260 (A, B, C, D, E…) Topics in Composition 3.0; 3 cr.
A course that focuses on theories of reading and writing and on the teaching of writing. From individual acts of composing to the academic discipline of composition studies, readings examine how writing happens and how it can be taught. With topics varying by term, the course makes connections to scholarship in language, literary studies, and education. Prerequisite: ENGL 203 or higher, based on placement. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 261 (A, B, C, D, E…) Advanced Literary Theory 3.0; 3 cr.
A course that covers a particular theorist or theoretical problem in literary and cultural studies. Topics may vary from term to term, but might include investigations of disciplinary power and biopolitics, contemporary theories of sovereignty and the camp, theories of the event, philosophy and set theory, or theories of virtuality and embodiment. Prerequisite: ENGL 221 or consent of instructor. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 263 Tutoring Writing 3.0; 3 cr.
A course that explores current issues in writing center theory and practice. Students gain insight into the writing process and hands-on practice with the act of peer tutoring. Prerequisite: ENGL 203. Every term.

ENGL 264 Fiction Writing for Video Games 3.0; 3 cr.
A workshop-based course which covers key elements in the writing of stories for video games. Students will produce a body of original narrative. Prerequisite: consent of instructor. Occasionally.

ENGL 290 (A, B, C, D, E…) Tutorial 3 cr.
Directed reading and discussion in a selected topic in literature or language, along with the writing of assigned papers. Prerequisite: a GPA of 3.3 or above in the major. Offered on demand. May be repeated for credit.

ENGL 292 Capstone Seminar for Literature Majors 3.0; 3 cr.
A writing-intensive course for majors that culminates in a research orientated project. Topics and approaches will vary depending on the instructor. Prerequisite: senior standing. Annually.

ENGL 297 The Theatrics of Gaming 3.0; 3 cr.
A workshop-based course which covers key elements in the intersection of theatre and video games. Students will produce a body of original narrative. Prerequisite: consent of instructor. Occasionally.

BA in English Literature: 39 Credits in English

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (Min.6)	Understanding the World, Quantitative Reasoning (9:3/6+3/6)	Community-Engaged Learning (3)
Lecture Courses (9+12+54 +9+3)	Required Arabic course (3) Required English courses (3 or 6, based on placement): ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits and 3 credits Human Values Required English literature courses (18): ENGL 205, 207,209 ,212, 221; one comparative literature course chosen from ENGL 240-243 Required English language courses (3): ENGL 229 Electives (12): four courses from among those numbered ENGL 210 to 297, excluding 293	Electives General Education (min. 6)	Understanding the World Electives (min. 6) Quantitative Thought Electives General Education (min. 3)	Required (3)
Seminar/ Workshop (3)		Required Writing for Majors (3): ENGL 238			
Research Project (3)		Required Capstone Course (3): ENGL 292			

Language Program

Mission Statement

The mission of the BA program in language is to promote a multifaceted view of language. The program provides students with a foundational understanding of the principles and issues within current approaches to language and introduces them to various aspects of the structure, use, and learning of language, with a focus on English. Through teaching and mentoring, the program encourages the students to apply their analytical skills to their experience outside the classroom, and prepares them for employment in areas such as English language teaching and publishing, and for the pursuit of advanced degrees in linguistics.

Course Descriptions

Language Courses

ENGL 107 Language and Culture 3.0; 3 cr.
An examination of the complex relation between language and culture. The course deals with ways in which language reflects and shapes culture. Topics include: human vs. non-human communication, linguistic relativity, cross-cultural pragmatics, etc. Occasionally.

ENGL 108 Beginning Translation 3.0; 3 cr.
An introduction to Arabic-English-Arabic translation. Students develop their translation skills by translating texts in various genres. Occasionally.

ENGL 227 Introduction to Language 3.0; 3 cr.
A general introduction to the study of language structure and use. Students familiarize themselves with methods of linguistic analysis, which they apply to English and other languages. Every term.

ENGL 228 Phonetics 3.0; 3 cr.
A study of the articulatory, auditory, and acoustic features of sounds from a variety of languages. The practical component of this course involves practice in transcription and production of sounds. Annually.

ENGL 229 History of the English Language 3.0; 3 cr.
An introduction to the cultural and linguistic history of the English language in a global context. The course covers the historical evolution of the English language, attempts at standardizing English and its contact with other languages, as well as the contexts of its twenty-first century expansion. Annually.

ENGL 230 Language in Society 3.0; 3 cr.
An examination of the social factors that influence and shape language variation. This course investigates how language is used in both ordinary and formal social exchanges. Topics include multilingualism and language choice, regional and social variations and language attitudes. Occasionally.

ENGL 231 English Grammar 3.0; 3 cr.
A study of grammar through exploration and analysis. The course introduces students to the concepts and arguments used to describe and understand word and sentence structures of English. Occasionally.

ENGL 232 Language Acquisition 3.0; 3 cr.
An introduction to first and second language acquisition. The course highlights topics such as contexts of learning, learner characteristics, universals of language acquisition and the nature-nurture debate. Occasionally.

ENGL 233 Introduction to Translation 3.0; 3 cr.
An introduction to translation theories and practices. The course offers hands-on opportunities to practice translation between Arabic and English. Pre/corequisite: ENGL 203 or higher. Every term.

ENGL 234 Language and Gender 3.0; 3 cr.
An introduction to the large body of literature on language and gender, with focus on current issues in gender studies from a linguistic perspective. Students examine how language in use mediates and is mediated by the social construction of gender identities. Occasionally.

ENGL 235 Politics of Language 3.0; 3 cr.
An examination of the connection between language and power. This course explores the relationship between language and the indexing, creation and maintenance of power relationships. Topics include standard and non-standard varieties, accented speech and language ideologies. Occasionally.

ENGL 238 Academic Writing for English Majors 3.0; 3 cr.
A course for English majors that covers methods and practices of reading, writing, and research specific to the study of language and literature. Attention is placed on analytical thinking, critical reading, and persuasive writing at an advanced level appropriate to the discipline. Prerequisite: English major status and ENGL 204, or consent of instructor. Every term.

ENGL 245 Assessing Language Proficiency 3.0; 3 cr.
An introduction to the theory and practice of foreign/second language assessment. The course considers reasons to assess language skills, what exactly is assessable, and how a fair assessment can be made. The social and political implications of assessment policy are investigated. Occasionally.

ENGL 246 Applied Linguistics 3.0; 3 cr.
A course that focuses on the areas of society where language plays a vital role. It studies the application of linguistic theories, concepts and research in solving practical problems. Topics covered include language policy and planning, issues in communication, language literacy, translingualism, critical discourse analysis, and language ideology. Occasionally.

ENGL 247 Discourse Analysis 3.0; 3 cr.
An introduction to the study of spoken and written texts to understand their meanings. The course considers the relationship between a text and its social and cultural context, and how language is used to present different perspectives on the world and to construct different identities. Occasionally.

ENGL 248 (A, B, C…) Special Topics in English Language 3.0; 3 cr.
This course changes in content from year to year and focuses on varied topics in English language. May be repeated for credit. Occasionally.

ENGL 262 (A, B, C, D, E...) Advanced Topics in Translation 3.0; 3 cr.
A course that examines in depth a specific topic of translation using texts of significant cultural value. Texts will vary each term, and course work will be done in consideration of theories of translation, form and cultural context. Prerequisites: ENGL 108 or ENGL 233, or consent of instructor. Pre/corequisite: ARAB 201 or equivalent. Occasionally. May be repeated for credit for a maximum of 6 credits.

ENGL 290 (A, B, C, D, E...) Tutorial 3 cr.
Directed reading and discussion in a selected topic in literature or language, along with the writing of assigned papers. Prerequisite: a GPA of 3.3 or above in the major. Offered on demand. May be repeated for credit for a maximum of 6 credits.

ENGL 293 Seminar for English Majors in Language 3.0; 3 cr.
Topics vary depending on the instructor. Prerequisite: senior standing. Occasionally.

ENGL 294 (A, B, C, D, E…) Advanced Topics in Grammar 3.0; 3 cr.
In-depth study of advanced topics in grammar, such as grammar in context, grammar and discourse, or grammar as science. May be repeated for credit for a maximum of 6 credits. Occasionally.

BA in English Language: 39 Credits in English

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (Min. 6)	Understanding the World, Quantitative Reasoning (9:3/6+3/6)	Community-Engaged Learning (3)
Lecture Courses (9+12+48 +6+9+3)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits and 3 credits Human Values Electives (3) Required English language (15): ENGL 227, 228, 229, 230 or 232, 294, or 231 Required English literature (9): ENGL 212, two courses chosen from ENGL 205, 207 and 209 Electives (12): one literature and three language courses from those numbered ENGL 210 to 291, 294	Electives General Education (min. 6)	Understanding the World Electives (min. 6) Quantitative Thought Electives General Education (min. 3)	Required course (3)
Seminar/ Workshop (3)		Elective English: ENGL 236, 239, 249, 250, 251, 252 (formerly 237), 293, 294			
Laboratory (6)		Required English (3): ENGL 238			
Research (6)		Required English (9): ENGL 212, 227, 228, 230			

Theater Program Courses

Courses in theater may be taken towards the minor in theater (described above) and/or in fulfilment of other degree requirements.

THTR 100 Discovering Theater 3.0; 3 cr.
An introductory course to the art and craft of theater designed to enhance students' enjoyment and understanding of live theater and develop proper theater etiquette. It requires students to watch all off-campus local productions available during the term. Occasionally.

THTR 200 Introduction to Theater 3.0; 3 cr.
An introductory course covering the functions of various theater personnel, a brief survey of the history of theater starting with the classical Greek drama, various types of modern and contemporary dramatic movements, and Arab and Lebanese theater practices. Annually.

THTR 210 Theater History 3.0; 3 cr.
An overview of theater and related entertainment from ancient to modern times. Acting, production, stages, spectacle, audience control, and presentation styles are covered and illustrated with slides, videos, and anecdotes. Occasionally.

THTR 218 Special Topics in Theater History and Dramatic Literature 3.0; 3 cr.
Specialized courses in theater history and dramatic literature, such as elizabethan drama, African American drama, Middle Eastern theater, Arabic drama, contemporary drama, etc. May be repeated for credit. Occasionally.

THTR 220 Voice and Acting in the Theater 2.2; 3 cr.
A course covering the basics of clear speaking, vocal projection, and acting. Occasionally.

THTR 221 Workshop in Stage Acting 3.0; 3 cr.
An introductory course to the art of stage acting covering a variety of acting styles and techniques from the earliest practitioners to Constantine Stanislavski, Bertolt Brecht, Sanford Meisner, Viola Spolin and Tadashi Suzuki among others. Occasionally.

THTR 240 Design in Theater 2.2; 3 cr.
A course on the basics of design and drawing as applied to theater; specifically stage settings, costume design, and poster design. Occasionally.

THTR 250 Workshop in Stage Directing 3.0; 3 cr.
An introductory course to the art of stage directing focusing on the functions of the director as a storyteller, collaborator, and stager. Occasionally.

THTR 258 Theater Production Practices 2.2; 3 cr.
An introductory course on the functions of various personnel involved in the process of producing a play. Students will mount a play of their choosing on campus. Occasionally.

THTR 259 Workshop in Theater Production 2.8; 6 cr.
An introductory course on the art of theater with a survey of theatrical roles and techniques, including participation in a campus or professional production. Prerequisite: consent of instructor. Biennially.

THTR 260 (A, B, C...) Special Topics in Theater 3.0; 3 cr.
Specialized courses in interdisciplinary theater studies such as courses in drama therapy, applied theater, theater of the oppressed, theater for education, etc. May be repeated for credit. Every term.

Department of Fine Arts and Art History

Chairperson	Sadek, Walid
Professors	Dahdah, Farès; Sadek, Walid
Associate Professors	Esanu, Octavian; Hammond, Joseph Richard
Assistant Professors	Al-Bahloly, Saleem; Saadawi, Ghalya; Youssef, Jad
Lecturers	Garro El Khoury, Joelle; Schell, Sarah Elizabeth
Instructors	Abela, Joe-Pietro; Abou Samra, Nidal; Al-Amine, Gheith; Khcheich, Rima; Maalouf, Maya Berta; Ouayda, Nour; Sabbah, Yasmina; Yassine, Khaled
Artist-in-Residence	Kahwagi, Bassam

Mission Statement

The Department of Fine Arts and Art History educates students in the arts in all their dimensions, believing that an understanding and appreciation of this area of human endeavor is an essential element in the formation of well-rounded individuals. To that end, we offer courses in studio arts, history and theory of art, and music. Our goal is to educate students with the skills to create meaningful statements in art and equip them to deal with artworks critically, and with scholarship. The department offers three degrees: a BA in studio arts, a BA in art history and an MA in art history and curating. The department also offers minors in studio arts, art history and music.

Studio Arts Program

The studio arts (SART) BA program provides undergraduate students with a strong foundation in studio skills: drawing, painting, sculpture, printmaking, analog and digital photography, video and new technology. The SART faculty members, while trained and skilled in studio techniques, do not espouse a conventional approach to the deployment of these techniques nor do they promote in their teaching a fidelity to the traditions of art. Rather, they all develop teaching methods through the lenses of their own current practices in which the past, present, and future of art are constantly being recomposed in dynamic constellations. The SART BA Program encourages a dynamical recalling of art from within current concerns and develops in students an ability to employ a large array of knowledge and skills with a readiness to open-up towards post-studio art practices. The requirement for a BA degree in studio arts is 90 credits for students entering the department at the sophomore level. The distribution of these courses is as follows:

Degree Requirements

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits).

At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Free Electives Outside the Department

SART 220 and music courses in the department may be allowed 3 cr.

Major Courses

These include:

- 39 credits in Studio arts: SART 200, SART 201, SART 202, SART 203, SART 204, SART 205, SART 206, SART 207, SART 208, SART 209, SART 221, SART 222, SART 223.
- Field Electives: 9 credits in art history and/or theory.

Minor in Studio Arts

The minor program in studio arts requires 15 credits:

- 3 credits from AHIS 250, AHIS 251, AHIS 252, AHIS 284, or approved alternate.
- 12 credits chosen from SART 200, SART 201, SART 202, SART 203, SART 204, SART 206, SART 207, SART 208, SART 221, SART 22 and SART 223 taken according to sequence and following prerequisites.

Course Descriptions

SART 150 Studio Arts for Freshmen 0.6; 3 cr.
This course introduces students to studio practices in drawing, painting and sculpture. The projects develop representational skills based on the observation of nature. Students are introduced to a variety of media and tutored into building a portfolio of their best work. Occasionally.

SART 200 Drawing 0.6; 3 cr.
This course introduces art students to the fundamentals of observational drawing through a variety of sketching techniques using wet and dry monochromatic media. Through the practice of drawing, students become aware of how we see what we see and acquire the necessary foundation for self-reflection and expression. Students are introduced to pictorial conventions and their historical context through practice and lectures. Open to all students. Annually.

SART 201 Painting I 0.6; 3 cr.
This course builds on the drawing skills acquired in the previous course and proposes the practice of painting as an investigative, expressive and conceptual tool. The introduction of color and an in-depth study of painting materials and techniques allow students to explore the stages of constructing a painting. Students engage with fundamental considerations of material surface, pictorial composition and subject matter considering examples taken from both historical and contemporary sources. Prerequisite. SART 200 or consent of the instructor. Annually.

SART 202 Painting II 0.6; 3 cr.
This course follows Painting I, and further develops students' technical abilities and knowledge. It introduces them to the specific practices of key modern and contemporary painters. By exploring the challenges of painting after photography, students raise practical and theoretical questions regarding the possibilities of transforming the world through the painted image. Through a series of focused and open-ended exercises students experiment with their acquired abilities and begin to open-up their work to more complex pictorial challenges, and individual approaches in their practice. Prerequisites: SART 200 and SART 201 or consent of the instructor. Annually.

SART 203 Sculpture 0.6; 3 cr.
This course introduces students to the practice of modeling forms through the observation of nature. In a series of applied projects, students learn the modeling of forms and their organization in space. Students will practice working with clay, cardboard, wood, plaster, and other mixed materials and learn safe studio working habits. Studio practice is accompanied by lectures that historically contextualize the changing conventions of sculpture since the late 19th century. Open to all students. Annually.

SART 204 Sculpture After the Monument 0.6; 3 cr.
With the beginning of Modernism, sculpture disengages from the logic of the public monument and is overtaken by the overlapping but uneven propositions of the autonomous art object and the contradictory individual subject. In this course, students study and practice various Modernist approaches to making objects that begin with the failed late projects of August Rodin and lead towards the beginnings of Minimalism. Prerequisites: SART 203 or consent of the instructor. Annually.

SART 205 The Technological Imagination 0.6; 3 cr.
This course introduces students to new technologies and their impact on how we come to understand our place in the world. Practices of data inscription and the concomitant techniques of data accessibility and salvageability constitute a challenge to anthropocentric conceptions of existence. Through a series of applied exercises as well as theoretical readings, students are initiated into this new field wherein ideas about time, space, materiality, and the primacy of vision are challenged and transformed. Prerequisite: Studio Arts students with senior standing. Annually.

SART 206 Analog Photography 0.6; 3 cr.
This course introduces students to black & white analog photography. Through practical projects students discover the mechanical and conceptual possibilities of the camera and extend their learning in lab sessions that provide thorough darkroom experience. There will be an emphasis on planning a photograph, aperture, shutter speed, white balance, ISO, the use of natural and artificial light and the function of lenses. Open to all students. Annually.

SART 207 The Digital Image 0.6; 3 cr.
This course investigates digitality as a practice in which images are infinitely malleable, reconfigurable, and exchangeable. The pixelized matrix of all digital image making is analyzed, practiced and theorized. Critical texts in visual theory are read and discussed along with developing projects that question the construction of visual hegemonies. Prerequisites: SART 206 or consent of the instructor. Annually.

SART 208 The Moving Image 0.6; 3 cr.
This course builds on the previous two courses in analog still photography and digitality and introduces students to the moving image. Through a series of small and focused projects students are introduced to video art, the film essay, and the documentary. Experimentation with narrativity, image sourcing, appropriation and soundscaping will be encouraged. Critical visual theory of video art and film is read and discussed. Prerequisites: SART 206 and SART 207 or consent of the instructor. Annually.

SART 209 Advanced Studio Practice 0.6; 3 cr.
This course offered last in the curricular sequence of SART opens a space for students to develop a working process and build a personal proposition on a topic of their choice. The course includes opportunities for students to present their work to each other and to develop their critical writing. The course includes studio visits by practicing local and international artists. Prerequisite: Studio Arts students with senior standing. Annually.

SART 220 (A, B, C…) Special Topics in Studio Arts 0.6; 3 cr.
Specialized courses in studio arts. The enrolled students are required to produce artworks and an essay in critical analysis. Prerequisite: consent of the instructor. Annually.

SART 221 Painting III 0.6; 3 cr.
This course aims at applying and developing students' existing technical abilities and knowledge of image making by providing the opportunity to fully engage with the process of painting, through self-directed projects. Students will work independently, and in conversation with specific works of modern and contemporary art. Prerequisites: SART 200, SART 201 and SART 202 or consent of the instructor. Annually.

SART 222 Sculpture after Sculpture 0.6; 3 cr.
This course extends the practice of sculpture into the open and overlapping fields of architecture, urbanity, landscape, and public institutions. Students will study and practice various approaches such as intervention, excavation, vandalism, non-anthropocentric scales and temporalities, the ready-made, repetition, and ephemerality to think through the discourses that structure our subjectivities and script our aesthetic and political practices. Prerequisites: SART 203, SART 204 or consent of the instructor. Annually.

SART 223 The Film Essay 0.6; 3 cr.
In this advanced studio course, students develop, for the duration of the term, a self-led project situated in the rich ongoing history and imaginative interaction between the moving image and the still photograph. Studio sessions are organized around lectures, technical workshops, group reviews and visits to artists' studios. Through critical experimentation, students develop an audio-visual work informed by their studies in the previous courses SART 206, 207 and 208. Prerequisites: SART 206, SART 207 and SART 208 or consent of the instructor. Annually.

Art History Program

The art history program seeks to train students' skills and concepts needed for research, teaching, and curating. It offers a core program with flexibility in the choice of art history concentrations in various periods and areas, notably the Middle East. The requirement for a BA degree in art history is 90 credits for students entering the department at the sophomore level. The distribution of these courses is as follows:

Degree Requirements

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits). At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Elective Requirements

These requirements are any one course (3 cr.) from the following group: PHIL 217, GRDS 331, SOAN 250, ARCH 017, or equivalent.

Free Electives Outside the Department

Music courses in the department may be allowed. 6 cr.

Major Courses

The major courses include 42 credits in the department as follows:

- AHIS 203 or AHIS 204, AHIS 208 and AHIS 210
- AHIS 207 or AHIS 209, AHIS 224 and AHIS 228
- AHIS 251, AHIS 252, AHIS 284 and AHIS 285
- Four further courses in art history, of these, a maximum of two studio arts courses may be taken to replace up to two art history courses

Minor in Art History

The minor program in art history requires 15 credits:

- 6 credits chosen from AHIS 203, AHIS 204, AHIS 207, AHIS 208, AHIS 209, AHIS 210, or equivalents
- 6 credits chosen from AHIS 221, AHIS 224, AHIS 225, AHIS 226, AHIS 227, AHIS 244, AHIS 249, AHIS 263, AHIS 281
- 3 credits from AHIS 250, AHIS 251, AHIS 252, AHIS 284, or approved alternate

Course Descriptions

AHIS 150 Introduction to Art History for Freshmen 3.0; 3 cr.
A course that offers a fundamental overview of art and its development in the Western world, providing the students with a chronology and brief description of the main art periods and movements in the West starting from prehistoric art all the way to contemporary art. Every term.

AHIS 160 Introduction to the History of Photography for Freshmen 3.0; 3 cr.
This course offers a chronological overview of the history of photography and the moving image in the Western world from the nineteenth century until the present. Photographers from Lebanon and the region will also be covered. Occasionally.

AHIS 203 Ancient Mediterranean Art 3.0; 3 cr.
This is a chronological examination of major Mediterranean empires taking students from Ancient Egypt to the fall of the western Roman Empire in the late 5th century CE. It aims to introduce students to a wide range of cultures of the ancient world and the role that the visual arts played in society, politics and the formation of their worldviews. Equivalent: ARCH 121.

AHIS 204 Medieval Art 3.0; 3 cr.
This course examines the political, religious and social contexts of art and architecture in the European Middle Ages (c. 500-1400 CE). It considers artistic and cultural shifts after Rome, image as knowledge, migration, conflict, and artistic exchange across Europe and beyond.

AHIS 205 Art of Medieval Manuscripts 3.0; 3 cr.
This course covers the history and production of manuscripts in the medieval west. The course will engage historical, theoretical and practical approaches to understanding medieval manuscripts.

AHIS 207 Early Islamic Art and Architecture 3.0; 3 cr.
This course explores the social, political, and cultural developments and changes of art and the built environment of the early Islamic period, from the foundation of Islam during the 7th century until the mid-13th century. The regions covered in this course include the Middle East, North Africa, Anatolia, Iran, Central Asia, and parts of South Asia. Occasionally.

AHIS 208 Renaissance Art 3.0; 3 cr.
A study of Renaissance art and architecture in Western Europe c.1300 - c.1600. The course covers a variety of influential works, their historical contexts and ways to understand them. Annually.

AHIS 209 Ottomans, Mughals, and Safavids 3.0; 3 cr.
This course explores the art, architecture, and urban culture of the Ottoman Turks, the Safavids of Iran and the Mughals of India, or the “gunpowder empires,” which dominated the Middle East and South Asia during the newly globalizing era of the early modern period. Occasionally.

AHIS 210 Enlightenment and Art 3.0; 3 cr.
The course covers the art and architecture of the long eighteenth-century (c. 1650-1830s), with a focus on the relationship of the ideas and philosophies of the Enlightenment and visual culture. It examines the emergence of cultural institutions such as academies, galleries and museums in parallel with new forms and methods of scholarship and philosophy. It will cover the Grand Tour, Neo-Classicism, colonialism, revolution and the romantics. Equivalent: ARCH 122.

AHIS 221 Modern Art and Culture 3.0; 3 cr.
This course covers the late nineteenth century to the 1960s. Artworks will be examined in relationship to their historical and cultural contexts, including contemporary art criticism, reception, and artists' writing. Equivalent: ARCH 223.

AHIS 224 Art of the Modern Middle East: The Nineteenth Century 3.0; 3 cr.
This course covers the history of art in the Ottoman and Qajar Empires from the late eighteenth-century through the First World War. It explores how existing artistic traditions were transformed and new art forms were adopted in the context of modernization projects undertaken in response to threats from European states. Occasionally.

AHIS 225 Art Now 3.0; 3 cr.
This course looks at contemporary art, as it is being produced, diffused and consumed in the present, while questioning what constitutes the present we live in historically, politically and ideologically. Annually.

AHIS 226 Art After the Lebanese Wars 3.0; 3 cr.
The course is an introduction to a number of conceptual and documentary artistic practices in the political context of Lebanon over the last two decades. Occasionally.

AHIS 227 Sound in Visual Culture 3.0; 3 cr.
The course attempts to outline and unpack the rich premise of sonic and aural cultures through art, music, the voice, the soundtrack, radio, as well as other media, within a critical framework. Occasionally.

AHIS 228 Art of the Modern Middle East: Twentieth Century 3.0; 3 cr.
This course explores the art of the Middle East during the twentieth century, when new nation-states gave rise to new imaginaries of community, political-wing struggles introduced new models of political action, and political violence resulted in displacement and exile. It follows how, in the context of a project to formulate national identities, the modernist deconstruction of the picture intersected with the rediscovery of ancient and popular artistic traditions.

AHIS 230 Portraiture 3.0; 3 cr.
The course examines the genre of portraiture using examples from across art history to the present day, including social media. It asks what constitutes a genre, what is portraiture, what are its functions for those that make it and within our society. The course aims to bring historical and theoretical lessons to understand individuality, identity, subjectivity, self-presentation and likeness. All periods in art history may form part of the discussions. Formerly AHIS 249F.

AHIS 244 Phenomenology and Art 3.0; 3 cr.
This course introduces students to phenomenological methods in the study of art. Phenomenology centers on a description of consciousness in relation to the world, in relation to the experience of time and within the horizon of death. It has generated rich concepts of the body and sense experience, which have led philosophers to take the artwork as a site for inquiry. We look at the role of the artwork in this tradition, and how art historians have developed interpretations drawing on phenomenology. We will then use phenomenological concepts to guide our examination of a range of work constructed around the experience of the viewer.

AHIS 249 (A, B, C…) Special Topics in Art History 3.0; 3 cr.
Specialized courses in art history. Occasionally.

AHIS 250 (A, B, C…) Special Topics in Art Theory 3.0; 3 cr.
Specialized courses in art theory. Prerequisite: At least one previous Art History course (or equivalent) or one Special Topics in Art History course or consent of the instructor. Occasionally.

AHIS 251 Modern Art and Theory 3.0; 3 cr.
This course examines the conceptual and theoretical development of modernity and modernism, and its implications for art from the mid-nineteenth to the mid-twentieth centuries. Modernism, the avant-garde and realism as aesthetic regimes form the main framework of theoretical examination.

AHIS 252 Contemporary Art and Theory 3.0; 3 cr.
The course considers the historical and theoretical interrelations between contemporaneity and contemporary art since the end of WWII. The course addresses the ways in which art production, reception and interpretation have undergone drastic transformations against the background of broader historical changes and theoretical paradigm shifts. Annually.

AHIS 261 Methods in Art History 3.0; 3 cr.
A study in the tradition and methodology of art historical research. This pursues a discussion of the work of major theorists who have structured the discipline of art history; it includes theories of the evolution of art, iconography, and art criticism. Students will be expected to discuss, analyze, and write about course readings on a weekly basis. Occasionally.

AHIS 262 Seeing Rude and Erudite 3.0; 3 cr.
The introductory course approaches visuality by positing a lingering and generative difference between what we see and how we see; between what seems like a transparent access to the world and the representational systems by which the world is made available and accessible to seeing subjects who receive it and evaluate its images. Occasionally.

AHIS 263 Art and Labor 3.0; 3 cr.
This seminar-style interdisciplinary course draws theories and methodologies from art theory, philosophy, critical theory and social and political thought to investigate the question of artistic labor as well as the artwork as a product labor. The question of labor in the artwork is discussed in relation to social labor, and the way in which it both coincides and diverts from the latter. Students will be expected to discuss, analyze, and write about course readings on a weekly basis. Occasionally.

AHIS 281 Collecting and Exhibiting Islamic Art 3.0; 3 cr.
This seminar-style course takes a historiographical and theoretical approach to representations of Islamic art in museums, collections, and universal expositions/ fairs across Europe, the US and the Middle East. Students will be expected to discuss, analyze, and write about course readings on a weekly basis. Occasionally.

AHIS 282 Art and Cultural Criticism 3.0; 3 cr.
This seminar and writing workshop explores the relationship between culture, art and criticism emphasizing the stakes and contradictions of later modernity. Prerequisite: ENGL 204. Occasionally.

AHIS 284 History and Theory of Exhibitions 2.2; 3 cr.
The course introduces students to the history of exhibition-making practices since the 19th century. It focuses on the historical and theoretical reevaluation of those exhibitions that had a major impact upon the way art history is written. The course also introduces students to theoretical approaches to curating art exhibitions. Prerequisites: any two courses of the following AHIS 221, AHIS 222, AHIS 224, AHIS 225, AHIS 226, AHIS 251, AHIS 252, AHIS 262, AHIS 282, AHIS 283, or approved alternate. Annually.

AHIS 285 Practices of Curating 2.2; 3 cr.
The course offers a hands-on experience in organizing art exhibitions and related events. Students conduct curatorial research and implement their ideas practically, from writing curatorial concepts to selecting artworks and designing exhibitions at the AUB Art Galleries. Prerequisite: AHIS 284. Annually in the spring.

Music Program

The minor program in music seeks to train students in skills and concepts needed to develop as musicians and enhance their capacities as performers, analysts, and audience members. It offers the fundamentals of higher education in music, seeking to balance historical, theoretical, and performance aspects.

The minor program in music requires 15 credits:

- 6 credits from MUSC 220, 221, 230, 235, 239, 250
- 6 credits from MUSC 200, 205, 231
- 3 credits from MUSC 262, 263, 265, 266, 269

Course Descriptions

MUSC 150 Introduction to Western Music History for Freshmen 3.0; 3 cr.
A course that will introduce students to examining music through a critical lens emphasizing the social and cultural context of the music.

MUSC 200 Notation, Analysis and Audiation 3.0; 3 cr.
This course covers musical analysis and audiation as the foundation for comprehension, performance, and creativity in music. It covers the western system of musical notation, including rhythm and the organization of pitches. The course will train students to audiate, sight-sing and write music, to give them the tools to read, perform and analyze music and develop their musicality. Every term.

MUSC 205 Harmony, Form and Composition 3.0; 3 cr.
This course explores western musical harmony, forms and styles. It will include voice leading, functional harmony and harmonic structures. Students will learn how to analyze compositions, with reference to their historic context and traditions, and will practice the fundamentals of composition by writing short pieces in various forms and styles. Prerequisites: MUSC 200, or consent of Instructor. Fall.

MUSC 220 History of Western Music: Medieval to Classical 3.0; 3 cr.
A history of western music from antiquity through the 17th century. It studies the coeval developments of musical technologies, institutions, practices and theories of music, as well as forms, styles and genres in historical and social contexts. Covering the influence of ancient thought, religious and court music, the emergence of polyphony and notation, opera, ballet, orchestras and public concerts. Students will develop a knowledge of musical history, and practice historical and musical analysis through close listening to performances. Fall.

MUSC 221 History of Western Music: Classical to Contemporary 3.0; 3 cr.
A history of western music from c. 1700 to the present. The course includes the development of new systems of patronage and funding, new institutions (such as conservatories and public concert halls) alongside the impact of technologies (such as printing, recording, and electronic and digital tools). Through historical study and close listening students will develop an understanding of music in the west among contemporary debates about its significance and role, and the forms and styles of genres and performances. Spring.

MUSC 230 History of Opera 3.0; 3 cr.
A survey of the history and development of opera from 1598 to the present. Emphasis is placed on the analysis and evaluation of recorded opera performances on film.

MUSC 231 (A, B, C,...) Special Topics in Music Theories 3.0; 3 cr.
Specialized courses in music theories, such as western and non-western musical systems, aesthetics, critical theories and philosophical approaches.

MUSC 235 History of Jazz 3.0; 3 cr.
An investigation of the whole range of jazz history, from its beginning around the turn of the century to the present day.

MUSC 239 (A, B, C, ...) Special Topics in Music History 3.0; 3 cr.
Specialized courses in music history.

MUSC 250 History of Arabic and Middle Eastern Music 3.0; 3 cr.
A course introducing students to the history and key characteristics of Arabic and Middle Eastern music. No previous musical knowledge is required. While the class will be taught in English, it is highly recommended that students have a working knowledge of Arabic prior to taking the course.

MUSC 262 Arabic Music Ensemble 3.0; 3 cr.
Rehearsal and performance in ensemble of Arabic repertoire.

MUSC 263 Western Music Ensemble 3.0; 3 cr.
Rehearsal and performance in instrumental and vocal ensembles. Students will also discover a wide range of music literature, understand the repertoire and learn about the historical stylistic practices of pieces and how to execute them in the performance.

MUSC 265 Western Voice Performance 3.0; 3 cr.
A course on the fundamentals of singing technique and performance, including breath management, vocal registration, musical notation, and song repertoire.

MUSC 266 Arabic Voice Performance 3.0; 3 cr.
A course on the fundamentals of classical Arabic voice performance. Students will be expected to sing in class both in groups as well as alone.

MUSC 269 (A, B, C, ...) Special Topics in Music Performance 3.0, 3 cr.
Specialized courses in music performance.

BA in Studio Arts

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (Min. 6)	Understanding the World, Quantitative Reasoning (9:3/6+3/6)	Community Engaged Learning (3)
Lecture Courses (9+12+39 3+6+3+3)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values 6 credits required from Field Electives: 9 cr. of AHIS courses	Two approved general education courses numbered 200 or above (6 credits)	Two approved general education courses numbered 200 or above (6 credits) One approved Quantitative Reasoning General Education elective (3 credits)	Required course (3)
Studio Work (39)		SART 200, SART 201, SART 202, SART 203, SART 204, SART 205, SART 206, SART 207, SART 208, SART 209, SART 221, SART 222, SART 223			
Lecture/Performance: Free electives from outside the department (3 cr.) can include SART 220 and FAAH/Music courses even though these are within the department					

BA in Art History

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (Min. 6)	Understanding the World, Quantitative Reasoning (9:3/6+3/6)	Community Engaged Learning (3)
Lecture Courses (9+12+42+6 +6+3)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	9 credits required in the Cultures and Histories and 3 credits in Human Values. 30 credits including: AHIS 203 or AHIS 204, AHIS 208 and AHIS 210 AHIS 207 or AHIS 209, AHIS 224 and AHIS 228 AHIS 251, AHIS 252, AHIS 284 and AHIS 285	Two approved General Education courses numbered 200 or above (6 credits)	Two approved understanding the world General Education courses numbered 200 or above (6 credits) One approved Quantitative Reasoning General Education course (3 credits)	Required course (3)
Lecture/ Laboratory (12)		12 credits from additional courses in Art History. Of these up to 6 credits may be from Studio Arts			
Lecture/Performance: Free electives from outside the department (6 cr.) can include FAAH/Music courses even though these are within the department					

Department of History and Archaeology

Chairperson	Armstrong, Lyall
Professor Emerita	Seeden, Helga
Professor Emeritus	Seikaly, Samir
Professors	Cheikh, Nadia; Genz, Hermann; Sader, Helene
Associate Professors	Armstrong, Lyall Richard; Malleson, Claire Joanna; Newson, Paul Graham
Assistant Professors	Abou Hussein, Tarek; Ketsamanian, Varak; Kitlas, Peter Francis; Rabah, Makram
Lecturers	Kaidbey Takieddine, Naila; Nurpetlian, Jack

The department offers programs leading to the BA and MA in history, and PhD in Arab and Middle Eastern history. The department also offers programs leading to the BA and MA in archaeology.

The department also offers academic minors for undergraduate students in history and in archaeology. In addition, in association with the departments of biology and geology, the department offers an interdisciplinary minor in marine sciences and culture.

Requirements for transfer to the department include approval by the department and a grade of C+ or more in any two Culture and Histories courses (excluding the communication skills requirements in Arabic and English). Students expecting to work in Arab and Middle Eastern history must have knowledge of Arabic.

History

Mission Statement

By means of a broad and diversified curriculum, our undergraduate program introduces students to the richness and complexity of Arab and Middle Eastern history. This program is intended to develop not only essential knowledge of the past, but also awareness of the methodological and theoretical problematic involved in the study of history as a discipline in the humanities. Students are motivated to be reflexive, read, research and write critically, analytically, and without prejudice or preconceptions. Courses in European and American history supplement the core offerings, fostering a comparative understanding of the enduring relevance of the past in multiple contexts. In line with the faculty's mission, the program maintains major and minor flexible requirements, leaving room for students to explore other fields of study.

BA in History

Students majoring in history must complete a minimum of 39 credit-hours in the department, including HIST 286, HIST 287, HIST 291, and HIST 292. Detailed programs are determined by subcommittees of the department, which advise students on courses in their major, related departments, and electives.

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits). At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Minor in History

Students choosing to minor in history must complete five courses numbered 200 and above. All minors, especially those considering graduate work in history, are encouraged to take HIST 287 as one of the five courses.

Course Descriptions

HIST 101 History of Early Modern Europe, 1492-1815 3.0; 3 cr.
A chronological and topical survey of the political and socio-economic forces that have shaped early modern Europe and the rest of the world, including the voyages of discovery, the development of a global economy, the Enlightenment, the American Revolution, the French Revolution, and the downfall of Napoleon. Attention is given to teaching students how to tackle historical problems and how to initiate and conduct research. Open to freshman students only. Annually.

HIST 102 History of Modern Europe, 1815-1945 3.0; 3 cr.
A chronological and topical survey of the political and socio-economic forces that have shaped modern Europe and the rest of the world, including the development of ideologies, the advent of imperialism, World War I, the great depression, and the rise of totalitarian regimes and World War II. Attention is given to teaching students how to tackle historical problems and how to initiate and conduct research. Open to freshman students only. Annually.

HIST 103 History of the Arabs and the Middle East I: Seventh to Fifteenth Centuries 3.0; 3 cr.
This course surveys the history of the societies and polities of the Arabs, from the seventh to the end of the fifteenth century. The course will emphasize the contributions of the Arabs and other people in the Middle East to Islamic civilization. The transformation and variety of the societies that comprise this civilization over nine centuries will be illustrated through the use of narrative texts and selected primary sources.

HIST 104 History of the Arabs and the Middle East II: Sixteenth to Twentieth Century 3.0; 3 cr.
This course surveys the history of the societies and polities of the Arabs from the Ottoman conquests of the early sixteenth century to the twentieth century. The course will focus on the following periods and themes: the expansion of the Ottoman empire (16th century); the global crisis of the 17th century; the era of the notables (18th century); the age of revolutions and reform (19th century); European colonial penetration of the region (19th century/20th century); and the period of decolonization and globalization (20th century).

HIST 200 Introduction to the History of the United States 3.0; 3 cr.
An introductory survey of the social and political development of the United States from its colonial origins through the early twentieth century. Principal themes include European settlement of the North American continent and the establishment of an independent United States; the tensions between North and South that culminated in civil war; and the social transformations brought about by the rise of a market-oriented, industrial society. Annually.

HIST 201 Introduction to the Study of History 3.0; 3 cr.
An introduction to some of the main themes and problems of the study of history such as the structures, aims, and methods of historical writing, and related questions such as causation, periodization, and style. The readings in this course are drawn mostly from modern texts in the methodology of history. Annually.

HIST 202 Introduction to the Modern History of the Arab East 3.0; 3 cr.
An introduction to the modern history of the Arab East from the Ottoman conquest until the outbreak of the Arab revolt. This course also uses case studies relating to the rise of local Arab rule and to Arab-Turkish relations in the late Ottoman period. Annually.

HIST 210 Late Antiquity: Faith and Empire 3.0; 3 cr.
This course traces the histories of the Roman and Persian empires and the emergence of the Arab Muslim empire in Late Antiquity, from approximately 300 A.D.-700 A.D., focusing particularly on the Mediterranean World and the Near East and on the role of faith (Christian, Zoroastrian and Islamic) played in the ideological foundations of these empires. Alternate years.

HIST 211 Muhammad and the Origins of Islam 3.0; 3 cr.
An examination of the life of the Prophet of Islam, Muhammad b. ʻAbd Allāh b. ʻAbd al- Muttalib al-Hāshimī. The course analyzes source material for the life of the Prophet, including biographical literature, hadith and the Qur'an and its interpretation. By evaluating these primary sources, the course assesses the historicity and the evolution of the biographical material on the life of the Prophet. Alternate years.

HIST 212 Islamic History: Origins and Empire, 600–750 3.0; 3 cr.
A course that focuses on the origins of Islam in Arabia, Islamic expansion, internal divisions, and the establishment of the Umayyad dynasty. This course emphasizes the themes of Arab expansion and adaptation, the historical roots of Shiism, institutional developments, problems of societal integration, and the factors of decline. Alternate years.

HIST 213 Islamic History: The Rise and Fall of the Abbasids, 750–1055 3.0; 3 cr.
A survey of the Abbasid Caliphate from its establishment in 750 to the Seljuk take- over of Baghdad in 1055. This course studies the origins, interpretation, and results of the Abbasid revolution, the militarization of the state, the emergence of specific institutions, the process of political decentralization, and the flourishing of cultural-scientific achievements. Alternate years.

HIST 214 Islamic History: Military Society in the Middle East, 1055–1500 3.0; 3 cr.
A course that completes the three-part survey of the central lands of Islam, covering the period from the Seljuk conquest in the eleventh century until the Ottoman expansion into the Middle East at the beginning of the sixteenth century. This course traces the fusion of societies that generated a new social and political order in the region. Alternate years.

HIST 215 The Near East in an Age of Transition: Mamluks, Ottomans, and Safavids, 1450-1550 3.0; 3 cr.
This course surveys the history of the Near East as a contested space between Mamluk, Ottoman, and Safavid interests. General themes explored are confessionalization, military transformations, and shared intellectual and commercial networks. Formerly: HIST 258BU.

HIST 216 History of the Fatimid Imamate, 909–1171 3.0; 3 cr.
A survey of the major stages of the Fatimid polity from the turn of the tenth century to its demise at the end of the twelfth century. Major themes include the political institutions of the Fatimid state, the intellectual trends of the Fatimid movement, and the social and economic ramifications of Fatimid rule. Occasionally.

HIST 217 Slaves and Soldiers: The Mamluk Sultanate, 1250–1517 3.0; 3 cr.
An investigation of the politics and society of Egypt and Syria during the regime of the Mamluk Sultanate by means of a chronological and thematic survey of the period from 1250 to 1517. Using all sources available—historical, archaeological, literary—students investigate the origins and nature of the Mamluk institution and its impact on society and politics in the Middle East. Alternate years.

HIST 218 The Abbasid Court 3.0; 3 cr.
A course that focuses on the Abbasid court in the ninth and tenth centuries. It seeks to define the terms court and courtiers within the Abbasid context and studies the structure that defined the court in a physical way, the Abbasid court culture; the role of ceremonial, the interpenetration of harem and court, and the understanding of particular functions of courtiers. Alternate years.

HIST 219 The Formation of Islamic Thought 3.0; 3 cr.
A survey of major disciplines in Islamic thought as they developed in the first four centuries of Islamic history. The course covers topics such as the compilation of the Qur'an and Qur'an interpretation, the development of hadith, the evolution of legal thinking and legal schools, political thought, theological discussions, and sectarian movements. Annually.

HIST 220 Local Histories 3.0; 3 cr.
A term-specific variety of courses that focus on provincial history and deal with the affairs, both urban and rural, of a particular region or locality. Courses may include such titles as Bilad al-Sham, 600–1097 and Rural Syria in Ottoman times. May be repeated for credit under different topics. Occasionally.

HIST 225 Byzantine Empire and Civilization, 330–900 3.0; 3 cr.
A survey of Byzantine history from the foundation of Constantinople in 330 to the end of the Iconoclast controversy and the establishment of the Macedonian dynasty in the later ninth century. Readings focus on doctrinal controversies, the reconstruction of the empire in the seventh century, and foreign relations, as well as artistic and cultural expression. Alternate years.

HIST 226 Byzantine Empire and Civilization, 900–1453 3.0; 3 cr.
A continuation of HIST 225, down to the fall of Constantinople. Topics include the encounter with the Crusades and the Italian maritime states, changes in Byzantine society, and the erosion and fragmentation of the empire in the thirteenth and fourteenth centuries. Alternate years.

HIST 227 Cultures in Contact: The Crusades 3.0; 3 cr.
A survey of the history of the Crusades from the beginning of the movement in the eleventh century until the demise of the Crusader states in the Middle East at the end of the thirteenth century. This course investigates the political and social conditions in the Levant that enabled the Crusaders' initial success and ultimate failure. Alternate years.

HIST 230 Iran: State, Society, and Religion, 1501–1722 3.0; 3 cr.
A course on the origin, expansion, and development of the Safavid state from the establishment of the dynasty as leaders of a Sufi order in the early fourteenth century until the fall of the Safavid dynasty and state in the eighteenth century. In addition to the political history of Persia during this period, this course examines the economic, social, and intellectual life in Persia under the Safavids. Occasionally.

HIST 233 History of the Arabs to 632 (in Arabic) 3.0; 3 cr.
A course that covers Arabia before the coming of Islam, explaining in some detail the history of the various Arabian kingdoms of both Southern and Western Arabia. Particular importance is attached to the study of surviving epigraphy and the historical dimensions of Jahili poetry. Occasionally.

HIST 234 History of the Arabs, 632–750 (in Arabic) 3.0; 3 cr.
A survey of the Rashidun and Umayyad period, with special emphasis on the politics and society of the Umayyad Caliphate and its place in early Arab Islamic civilization. Original texts are used in addition to modern studies. Occasionally.

HIST 235 History of the Arabs, 750–950 (in Arabic) 3.0; 3 cr.
A course that covers the first two centuries of the Abbasid Empire until the arrival of the Buyids, the first dynasty openly to take the Abbasids under their wing. This course places particular emphasis on the culture of the period as well as on Abbasid institutions of government and society. Occasionally.

HIST 236 History of the Arabs, 950–1258 (in Arabic) 3.0; 3 cr.
A course that covers Arab history from the Buyids to the Mamluks, also discussing other major dynasties such as the Seljuks, Zengids, and Ayyubids. Occasionally.

HIST 237 Ottoman State and Society, 1300–1600 3.0; 3 cr.
A course on the formation, consolidation, and expansion of the Ottoman state from its birth as a ghazi principality in northwestern Anatolia in the late thirteenth century until the end of the so-called Classical Age. This course emphasizes political and institutional developments. Alternate years.

HIST 238 Ottoman State and Society, 1600–1923 3.0; 3 cr.
A continuation of HIST 237 which traces the change and transformation of the classical Ottoman system and the responses to it. This course examines the Ottoman reform efforts from traditional reform in the seventeenth century through the Tulip Age and down to the Tanzimat (modernization) of the nineteenth century. Alternate years.

HIST 239 History of the Arab East and Egypt from 1516 to 1798 3.0; 3 cr.
A course that covers the expansion of Ottoman rule into the Arab East and the nature of Ottoman domination and its consequences. Selected case studies investigate the emergence of local Arab autonomies in the seventeenth and eighteenth centuries. Alternate years.

HIST 240 Confronting Modernity: The Arab East and Egypt from 1798 to 1920 3.0; 3 cr.
A course on the Arab provinces of the Ottoman Empire in the age of the Tanzimat, foreign intrusion into the region, and the Arab provinces' progressive incorporation into a developing global economy. Special attention is given to Egypt's bid for autonomy, the nahda and the emergence of national sentiment in the Arab provinces of the Fertile Crescent. Alternate years.

HIST 241 Mediterranean Empires to 1800 3.0; 3 cr.
This course follows the Mediterranean history of the Habsburg, Ottoman, and Venetian empires from 1500-1800. Examining the possibilities and challenges presented by moments of encounter - both violent and peaceful - the course focuses on the role played by Mediterranean landscapes and a diverse group of people in shaping the dynamics of the early modern imperial sea.

HIST 242 A Social History of the Modern Middle East: 1800–1980 3.0; 3 cr.
A course that examines the historical trajectory and character of social groups— including peasants, workers, middle and upper classes—in the 19th and 20th century Middle East. It explores how the rise of modern interventionist states has transformed everyday social life. Also, it considers the effects, characteristics, and limits of the region's integration into the world economy, and the effect of oil and inter-state warfare on state-society relations. Alternate years.

HIST 243 History of the Arab East and Egypt since 1920 3.0; 3 cr.
The course focuses on the establishment of the mandate system, and other types of western control in the region, the struggle for Arab independence and the foundation of the post-colonial interventionist state. Alternate years.

HIST 244 Sociopolitical History of Modern Iran, 1800–1989 3.0; 3 cr.
The course focuses on the interaction between various social forces and the state in modern Iran. It examines the transformation of the state from a weak 19th century patrimonial monarchy, via an autocratic monarchy, to a post-revolutionary populist hierocracy; and discusses the transformation of tribes, the clergy, merchants, the intelligentsia, peasants, and workers, throughout the modern period. Alternate years.

HIST 245 History of Lebanon from 634 to 1920 A.D. 3.0; 3 cr.
A study of the history of the regions which came to constitute Greater Lebanon. This course analyzes the factors that contributed to the development of a distinctive Lebanese identity. Annually.

HIST 246 History of Modern Lebanon: From Grand Liban to the Taef Accord 3.0; 3 cr.
The course aims to familiarize and introduce students to the modern history of Lebanon, from the declaration of Greater Lebanon to the modern Lebanese state, encompassing more contemporary episodes of Lebanese history such as the 1975 civil war and its post-war implications. Formerly: HIST 258BM.

HIST 250 Modern Turkey 3.0; 3 cr.
An overview of Turkey's history from the late Ottoman Empire to the present, with attention to themes of nationalism, secularism, religion, and modernization. The course highlights both continuity and change in the making of the modern Turkish state and society.

HIST 251 History of North Africa and Spain in the Middle Ages 3.0; 3 cr.
A survey of North Africa and Andalusia from the Arab conquest until the eclipse of Muslim power in al-Andalus. Alternate years.

HIST 252 The Middle Ages in Europe 3.0; 3 cr.
A study of the history of the Western half of the Roman Empire during the crisis of the third century until the rise of the earliest nation states in Europe in the tenth and eleventh centuries. Occasionally.

HIST 253 History of Europe from 1350 to 1618 3.0; 3 cr.
A course that covers the transformation of Europe under the twin influences of the Renaissance and the Reformation. Attention is given to the political and socio-economic reorientations provoked by the voyages of discovery and the rise of European colonial empires. Occasionally.

HIST 254 History of Europe from 1618 to 1815 3.0; 3 cr.
A survey of the political and socio-economic evolution of Europe from the outbreak of the Thirty Years' War to the Congress of Vienna. Special attention is devoted to the rise to primacy of England and France and to the revolutionary transformations that the latter experienced. Occasionally.

HIST 255 History of Europe from 1815 to 1871 3.0; 3 cr.
A survey of the failure of the Vienna Settlement to preserve the European political status quo, the transformation of Europe under the impact of industrialization, and the emergence of dynamic new states in Italy and Germany. Occasionally.

HIST 256 World History from 1871 to 1914 3.0; 3 cr.
An examination of the socio-political and economic transformations which culminated with World War I. Attention is paid to the phenomenon of European imperialism and to the failure of the European state system and diplomacy to maintain peaceful co-existence. Occasionally.

HIST 257 The Contemporary World Since 1914 3.0; 3 cr.
A survey of the attempts to reconstruct a new world order at Versailles, the revolutionary overturn of existing orders in Russia, Italy, Germany, and China, the slide into World War II, and its aftermath. Occasionally.

HIST 258 Special Topics in History 3.0; 3 cr.
A term-specific variety of in-depth courses involving a detailed and systematic analysis of a particular topic, region, or nation. Examples of courses offered include Palestine under Mandate, Middle Eastern Monarchies, 1920-1958, Revolution in the Middle East, the Sea in History, Islamic Cities and Urbanism in the Modern Middle East. May be repeated for credit under different topics. Occasionally.

HIST 262 Women and Gender in Classical Islamic Society 3.0; 3 cr.
An investigation of the history of gender roles, perception, and experiences in the social, political, economic, and legal contexts of classical Muslim societies. Through a topical approach, emphasis is placed on the variety of Muslim women's experience. Reading material includes translations of primary sources that will be at the center of class discussions. Alternate years.

HIST 263 Islamic Cities, 600-1500 3.0; 3 cr.
An introductory survey of the development and diversity of cities in the Islamic world from the seventh century until the beginning of the sixteenth century as understood by historians and archaeologists. With some reliance on conceptual writing on urbanism, students will investigate diverse textual and material sources on the origins, forms, and functions of cities within the social, economic, and political contexts of the pre-modern Islamic world. Equivalent to AROL 263. Alternate years.

HIST 271 Race, Class, Gender: Introduction to American Social History 3.0; 3 cr.
A course that begins with the notion of how the study of the American past has been revolutionized in recent decades by social history, which focuses on the experiences of everyday people, particularly those from subordinate social groups. Employing this approach, the course looks at the lives of African-Americans, immigrant workers, and women, and shows how this alters the traditional picture of American history. Occasionally.

HIST 272 Economic History of the United States 3.0; 3 cr.
A survey of the economic life of the United States from colonial times to the present. This course examines the development of the economy and business institutions and corresponding changes in public policy and cultural life. Topics addressed include the colonial economy within the mercantilist system, the economics of slavery, industrialization, the rise of large corporations, government regulation, the Great Depression, the recent decline of traditional manufacturing, and the emergence of a high-technology, service-oriented economy. Occasionally.

HIST 273 The United States and the Middle East 3.0; 3 cr.
An examination of the varying and complex relationship between the United States and the Middle East over the last two centuries. Subjects examined include images of the Middle East in early American political discourse, the activities of American missionaries and the founding of AUB, Arab immigration to the US, the role of American oil companies in the region and the rise of OPEC, Cold War diplomacy towards the Arab states and Israel, the Iran hostage crisis, US intervention in the conflict in Lebanon, and the Gulf War. Occasionally.

HIST 274 The United States in the Twentieth Century 3.0; 3 cr.
A survey of the social, political, and cultural development of the United States from the early twentieth century until recent times. This course emphasizes particular episodes of domestic political reform such as the New Deal, the changing social roles of African-Americans and women, the turmoil of the 1960s and its aftermath, and the role of the United States as a world power. This course is designed as a companion course to HIST 200, although HIST 200 is not a prerequisite for HIST 274. Annually.

HIST 278/279 Special Topics in United States History 3.0; 3 cr. (each)
A course emphasizing a particular subject, theme, period, or region in the history of the United States (e.g., Native Americans, US environmental history, Civil War and Reconstruction, the American West) to be offered by resident or visiting specialists with expertise in the field. May be repeated for credit. HIST 278A is equivalent to AMST 215. HIST 279A is equivalent to AMST 230. Occasionally.

HIST 286 Historical Interpretation 3.0; 3 cr.
An introduction to current theoretical trends and interpretations in history and archaeology, including postmodern interpretations. Alternate years.

HIST 287 Historical Writing 3.0; 3 cr.
An applied library course focusing on the conduct of historical and archaeological research and writing. Emphasis centers on historical and archaeological methodology in the identification and utilization of sources, analysis, synthesis, and exposition. Alternate years.

HIST 291/292 Senior Seminar in Arab and Middle Eastern History 3.0; 3 cr. (each)
A seminar in which students work in association on a select topic, report on their progress in class, and incorporate their findings in a detailed paper applying recognized historical methods of referencing and documentation. Alternate years.

39 Credits in History

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (Min. 6)	Understanding the World, Quantitative Reasoning (9:3/6+3/6)	Community-Engaged Learning (3)
Lecture Courses (9+39+6+6+3+3)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values Nine history courses (27 cr.) from the following two categories: HIST 202, 212, 213, 214, 216, 217, 219, 220, 225, 226, 227, 230, 233, 234, 235, 236, 237, 238, 239, 240, 242, 243, 244, 245, 251, 258, 262, 263 HIST 252, 253, 254, 255, 256, 257, 259, 260, 271, 272, 273, 274, 278, 279 (no more than two courses [6 cr.] may be taken from this category)	Two courses (6) (The academic adviser will recommend particular courses in these disciplines)	Two courses (6) The academic adviser will recommend particular courses in these disciplines One course(3) in computer literacy	Required course (3)
Seminar (6)		Required history courses: HIST 291(3), 292(3)			
Laboratory (3)				Computer Lab (3)	
Research Project (6)		Required history courses: HIST 286(3), 287(3)			

Archaeology

Mission Statement

The undergraduate program in archaeology provides students with a working knowledge and critical understanding of the methodological and theoretical principles of archaeological investigation and fieldwork. Its curriculum introduces students to the wealth and diversity of Mediterranean and Near Eastern archaeology. In addition to developing essential knowledge about the material and cultural roots of past societies, the program enhances student awareness about the value and relevance of Lebanon's and the region's archaeological heritage. In line with the faculty's mission, the program maintains major and minor flexible requirements, enabling students to explore other areas of academic interest.

BA in Archaeology

Students majoring in archaeology must complete a minimum of 39 credit-hours in the department, including HIST 286, HIST 287, AROL 233 or 234, and AROL 291 or AROL 292. Detailed programs are determined by subcommittees of the department, which advise students on courses in their major, related departments, and electives.

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits). At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Minor in Archaeology

Students choosing a minor in archaeology must complete five courses numbered 200 and above, including one of the following courses: AROL 211, AROL 212, AROL 233, AROL 234, AROL 291, or AROL 292.

Course Descriptions

AROL 101 Introduction to Archaeology 3.0; 3 cr.
An introductory course on how the world's archaeological resources are threatened and require rescue, protection, and management. Archaeology studies this cultural heritage and rediscovers human experience from its origins to the present. What is the nature of archaeological evidence, and how can it be saved? Every term.

AROL 201 Archaeology in Lebanon 3.0; 3 cr.
A course that presents the archaeology of Lebanon: its history, institutional organization, the state of the evidence, and the problems Lebanon's archaeological heritage is facing. Reports of the country's main excavated sites and standing monuments are studied in combination with required site visits. Alternate years.

AROL 213 The Human Story I: The Old Stone Age (up to ca. 10,000 BC) 3.0; 3 cr.
A course on the physical and cultural evolution of hominids and early humans subsisting on food gathering, hunting, and fishing in a Pleistocene environment. The cultural and functional significance of artifacts and lifestyles are investigated with the help of information gained from the palaeoenvironment, experimental technology, and ethnography. Alternate years.

AROL 211/212 Methodology 3.0; 3 cr. (each)
A study of the methods of recovery, systematic description, integration, and presentation of archaeological material for the preservation and reconstruction of information from the human past. Special emphasis is given to cultural heritage preservation and education in Lebanon and the Near East. Alternate years.

AROL 214 The Human Story II: The New Stone Age or Neolithic Period (tenth to fourth millennium BC) 3.0; 3 cr.
A course on the gradual domestication of plants and animals, leading to food production, and the development of socio-cultural systems with increasing differentiation of activities. Neolithic village communities are investigated for evidence of new technologies and arts and crafts, including exotic raw materials and luxury goods. Alternate years.

AROL 215 The Near East in the Bronze Age I (Chalcolithic and Early Bronze Age) 3.0; 3 cr.
This course focuses on the emergence of complex societies in the Near East during the fourth to third millennia BC. Key issues are the transition from a village-based to an incipient urban society, the development of social stratification, craft specialization, and international trade. Alternate years.

AROL 216 The Near East in the Bronze Age II (The Middle and Late Bronze Age) 3.0; 3 cr.
This course focuses on the development of complex urban societies in the Near East during the second millennium BC. Key issues are the development of urban communities and incipient territorial states, their incorporation into larger empires, the development of palace economies, international trade, and political relations, and the breakdown of the Bronze Age system. Alternate years.

AROL 217 Phoenicia and the Phoenicians 3.0; 3 cr.
An investigation of the archaeology of the Levantine coast between 1200 and 300 BC, with special emphasis on recently excavated Iron Age sites in Lebanon. This course examines the organization of the Phoenician city-states and their material culture. Alternate years.

AROL 218 The Phoenician Expansion in the Mediterranean 3.0; 3 cr.
A study of the Phoenician, mainly Tyrian and Sidonian, expansion in the Mediterranean, its causes, and the means by which it was achieved. This course also examines the material culture of the first millennium BC Phoenician settlements in Cyprus, North Africa, Italy, and Spain as well as cultural and economic interaction with local populations. Occasionally.

AROL 219 Ancient Mesopotamia: Sumer and Akkad 3.0; 3 cr.
A study of the major political, cultural, and technological achievements of Mesopotamian civilization from the fourth millennium BC to the fall of the Ur III Dynasty. Specific archaeological sites are chosen to illustrate the material culture of the successive historical periods from Late Uruk to Neo-Sumerian times. Occasionally.

AROL 220 Ancient Mesopotamia: Assyria and Babylonia 3.0; 3 cr.
A study of the major political, cultural, and technological achievements of Mesopotamian civilization from the second millennium BC to the fall of the Neo-Babylonian Empire. Specific archaeological sites are chosen to illustrate the material culture of the successive historical periods from the Old Babylonian/Old Assyrian period to Neo-Babylonian times. Occasionally.

AROL 221 Archaeology of the Greek World I 3.0; 3 cr.
A course on the Greek Bronze and Dark Ages, covering the archaeology of Minoan Crete, the Cyclades, Helladic and Mycenaean Greece, and the development of the early Greek city states. Alternate years.

AROL 222 Archaeology of the Greek World II 3.0; 3 cr.
A course on Archaic and Classical Greece that explores the history and archaeology of Greece, Western Asia Minor, and the Greek colonies in Southern Italy, and Sicily, from the eighth to the fourth centuries BC. Alternate years.

AROL 223 Archaeology of the Hellenistic World 3.0; 3 cr.
A course on the history and archaeology of the empire of Alexander the Great and his successors, in Greece, Asia Minor, the Near East, Iran, and beyond from the fourth to first centuries BC. This course covers the spread of Greek culture and institutions, and their interaction with local cultures. Alternate years.

AROL 224 Introduction to the Roman World 3.0; 3 cr.
An introduction to society and culture of the Roman Empire. The focus of this course is on Rome and the provinces, imperial history, everyday life, and material culture between the second century BC and the fourth century AD, with special emphasis on the first and second centuries, when the Roman Empire was at its height. Alternate years.

AROL 225 The Roman and Byzantine Near East 3.0; 3 cr.
A study of the history and material culture of the Near East, from the first century BC to the seventh century AD, including archaeological sites, religion, art, and architecture. The emphasis is on local traditions and responses to Roman rule. Alternate years.

AROL 226 The World of the Philistines, Israelites, and Aramaeans 3.0; 3 cr.
An investigation of the material culture of Syria and Palestine from 1200–300 BC, with special emphasis on the origin and early settlement of Philistines, Israelites, and Aramaeans, the formation of their states, and the processes of urbanization. Alternate years.

AROL 227 The Archaeology of Anatolia I: From the Neolithic to the Middle Bronze Age (10,000—1600 BC) 3.0; 3 cr.
The course covers the archaeology of Anatolia (modern Turkey) from the beginning of the Neolithic (ca. 10,000 BC) until the end of the Middle Bronze Age (ca. 1600 BC), with a special focus on key concepts such as the process of neolithization, the emergence of elites and craft specialists in the Early Bronze Age, and the development of international trade relations in the Middle Bronze Age. Alternate years.

AROL 228 The Archaeology of Anatolia II: The Hittites (1600-1200 BC) 3.0; 3 cr.
This course deals with the archaeology of Anatolia in the second millennium B.C. ca. 1600 to ca. 1200 BC. It discusses the rise and development of the Hittite empire, its material culture and the reasons of its collapse around 1200 BC. Special focus is on the emergence and decline of complex state societies and on the interconnection of Anatolia with the Ancient Near East. Alternate years.

AROL 230 Water in a Changing World 3.0; 3 cr.
This course provides a brief introduction to the science of water, both from a geological/ hydrological/ environmental and from an archaeological/historical perspective. The course explores how societies in the past and in the present dealt or deal with water management issues. The course aims to provide students with the opportunity to explore water related issues with supported science and historical evidence. This course was previously offered as AROL 235AH. Students cannot receive credit for both GEOL 208 and AROL 230. Annually.

AROL 231 Ancient Near Eastern Religions 3.0; 3 cr.
A study of ancient Mesopotamian, Canaanite, and biblical religious texts with emphasis on creation myths, divine beings, death and the afterlife, cults and rituals. This course also includes a complementary investigation of archaeological evidence for religious beliefs and practices. Occasionally.

AROL 232 Animals in Archaeology 3.0; 3 cr.
This course examines the relationship between humans and animals from the Palaeolithic to the end of the Roman Period. The course answers questions such as: 1) Why, when and how did humans use animals? 2) How did animals influence and change the social and economic structures of past human societies? Important concepts such as the domestication of animals, the secondary products revolution, and the development of specialized ways of subsistence such as pastoralism and nomadism will be discussed. Occasionally.

AROL 233/234 (A, B, C…) Fieldwork in Archaeology 3.0; 3 cr. (each)
A course entailing participation in archaeological fieldwork to acquire practical experience of methods and techniques used in area surveys, excavation, building recording, post-excavation analysis, or ethnographic data collection related to archaeological fieldwork. Restricted to majors and minors in Archaeology. May be repeated for credit upon approval of the department. Annually.

AROL 235/236 Special Topics in Archaeology 3.0; 3 cr. (each)
A course on the archaeology of a particular area, region (e.g., Anatolia, the Arabian Peninsula, Egypt, Iran, etc.) or subject. Such courses are offered by resident or visiting specialists in their respective fields. May be repeated for credit. Occasionally.

AROL 237 Plants and People in the Past 3.0; 3 cr.
This course investigates the dynamic and co-dependent relationship between people and plants in the past, from the Palaeolithic to the Roman Period, based on archaeological evidence primarily from ancient Egypt, Africa and the Near East. The course will address topics relating to agriculture and land management, the economic value of plants, plant food processing technologies, nutrition and diet, production of furniture and textiles, the relationships between plants and animals in agricultural systems, and the cultural or symbolic significance of plants.

AROL 238 Origins and Growth of Agriculture 3.0; 3 cr.
This course will introduce students to the origins of agriculture in the Fertile Crescent. It focusses on the cultivation and domestication of cereals, based on archaeobotanical data from exactions at Paleolithic and Neolithic sites in the Eastern Mediterranean and Northern Euphrates regions, looking at the causes and effects of the gradual shift from gathering wild plants, to the appearance of genetically altered “domestic” cereals, and formal agricultural systems between c.25,000-6,000 years ago.

AROL 240 Introduction to Ancient Egypt 3.0; 3 cr.
This course will introduce students to the history, archaeology, art, architecture, and texts of Ancient Egypt from the Palaeolithic to the end of the New Kingdom. It discusses the origins of civilization along the Nile and rise of Egypt as a powerful nation in the region, focusing on the social and cultural developments experienced by the people of ancient Egypt.

AROL 241 Daily Life in Ancient Egypt 3.0; 3 cr.
This course will introduce students to aspects of daily life in Ancient Egypt during the pharaonic period. Students will be introduced to and learn to assess the relative values of the rich variety of evidence for everyday activities in ancient Egypt, including private and royal funerary and religious art, archaeological evidence from settlements, tombs, and temples, and textual evidence covering administration, medicine, legal issues, religion, and personal matters.

AROL 242 Ancient Egyptian Towns 3.0; 3 cr.
This course takes an in-depth look at the rich archaeological remains of villages, towns and cities in Egypt, from Prehistory to the Roman Period. Students will be presented with a series of case studies of different sites across Egypt, based upon the most up-to-date results from excavations, looking at different types of settlements and the life within those towns and villages. The course will show the analysis of architectural remains, and the study of material culture (ancient garbage), reveal a wealth of information about the nature and structure of ancient societies – with methods that can be easily applied to help us better understand our place in our own modern world.

AROL 263 Islamic Cities, 600-1500 3.0; 3 cr.
An introductory survey of the development and diversity of cities in the Islamic world from the seventh century until the beginning of the sixteenth century as understood by historians and archaeologists. With some reliance on conceptual writing on urbanism, students will investigate diverse textual and material sources on the origins, forms, and functions of cities within the social, economic, and political contexts of the pre-modern Islamic world. Equivalent to HIST 263. Alternate years.

AROL 291/292 Senior Seminar 3.0; 3 cr.
A seminar on research methods in archaeology. Subjects include the study and identification of material culture and theoretical frameworks, or explanation in archaeology. Students are expected to research specific topics, present the results for discussion at workshop sessions, and submit their final analysis in research papers. Alternate years.

AROL 293 Ancient Texts I 3.0; 3 cr.
An introduction to West Semitic epigraphy, including the origin of the alphabet and development of alphabetic scripts as well as the presentation and comparative study of the various Semitic dialects. Occasionally.

AROL 294 Ancient Texts II 3.0; 3 cr.
Readings in a chosen ancient Semitic language (Aramaic or Phoenician). The course focuses on the grammar as well as on the transliteration of chosen texts from their original Semitic script, their translation, and their interpretation. May be repeated for credit under different topics. Occasionally.

39 Credits in Archaeology

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (Min. 6)	Understanding the World, Quantitative Reasoning (9:3/6+3/6)	Community-Engaged Learning (3)
Lecture Courses (9+39+6+6 +3)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values Nine archaeology courses (27 cr.) from the following: AROL 201, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 231, 232, 235, 236, 237, 238, 240, 241, 242 and 263	Two courses (6) (The academic adviser will recommend particular courses in these disciplines)	Two courses (6) The academic adviser will recommend particular courses in these disciplines One course(3) in computer literacy	Require course (3)
Field Work (3)		Required archaeology course: AROL 233(3), or 234(3)			
Laboratory (3)				Computer Lab (3)	
Research Project (6)		Required history courses: HIST 286(3), 287(3)			

Minor in Marine Sciences and Culture

Students choosing to minor in the multidisciplinary marine sciences and culture (MSCU) program must complete MSCU 201, MSCU 202, and MSCU 203, along with two electives chosen from any of the following: MSCU 204, MSCU 211, AROL 211, 213, 214, 215, 216, 217, 218, 221, 222, 223, 224, 225, 226, BIOL 246, 255, 266, or GEOL 201, GEOL 210, GEOL 214, and GEOL 222.

Course Descriptions

MSCU 201 Coastal and Marine Environments: Introductory Course 3.0; 3 cr.
Coastal environments and coastal systems provide a basis to explore human interaction with the sea in antiquity. This course explores how archaeologists go about investigating and recording these past activities, and introduces students to a multi-disciplinary approach that combines oceanography and archaeology to shed light on maritime history.

MSCU 202 Marine Techniques, Prospecting, and Mapping 3.0; 3 cr.
From echo sounders to bathymetry and photogrammetry, this course explores the variety of techniques and technologies that are used to investigate and document the seabed. Students will gain an understanding of the technical methodology used by oceanographers and geologists to explore maritime environments.

MSCU 203 Summer Fieldwork Course 3.0; 3 cr.
The field school, during which students will undertake fieldwork in the Mediterranean Sea, offers a range of experiences, from coastal survey and the deployment and analysis of remote sensing geophysical techniques and data, through to diver survey and the documentation of archaeological remains on the seabed.

MSCU 204 Coastal and Marine Environments: Maritime Cultural Heritage 3.0; 3 cr.
This course addresses the range of threats, whether natural or anthropic, that presently target maritime cultural heritage assets. It presents a comprehensive overview of international and national legislation related to the protection and management of the maritime cultural heritage. It also covers the application of ethnography to the maritime archaeological enquiry and reflects on how maritime communities, past and present, are an integral part of the socio-cultural heritage of a country.

MSCU 211 A History of Maritime Economics 3 cr.
The suggested course investigates maritime economies of the Mediterranean region from the Neolithic to the Roman Period based on the principles of maritime archaeology and marine sciences with a particular focus on the eastern Mediterranean such as production and distribution of goods through maritime transportation, port management, and port systems, maritime commercial networks, the exploitation of marine resources, and the relationship between ports and hinterland within the defined period of study.

Department of Mathematics

Chairperson	Nassif, Nabil
Professor Emeritus	Muwafı, Amin
Professors	Abi Khuzam, Farouk; Abu Khuzam, Hazar; Khuri Makdisi, Kamal; Nassif, Nabil; Raji, Wissam; Shayya, Bassam
Associate Professors	Alhakim, Abbas; Bertrand, Florian Jacques; Della Sala, Giuseppe; Kachmar, Ayman; Moufawad, Sophie; Roy, Tristan Cyrus; Sabra, Ahmad A; Tlas, Tamer
Assistant Professors	Abdo, Elie ; Chen, Chien-Hua ; Jahel, Colin ; Monni, Stefano ; Taati, Siamak
Lecturers	Azar, Therese; Darwich, Mohamad; Menhem, Mohamad; Mroue, Fatima; Riman, Manar; Yamani, Hassan
Instructors	Abu Diab, Sara; Ashkar, Alice; Berjaoui, Razane; Bou Eid, Michella; Chalhoub, Christopher; Fuleihan, Najwa; Itani, Maha; Karakazian, Hagop; Khachadourian, Zadour; Khayatt Saade, Ban; Nashef, Fida; Nassif, Rana; Rahhal, Lina; Tannous, Joumana

The Department of Mathematics offers programs leading to the degrees of bachelor of science (BS) and bachelor of arts (BA) in mathematics, applied mathematics, and statistics. It also offers programs leading to the degree of master of science (MS) in mathematics.

Mission Statement

The Department of Mathematics subscribes to the view that “Mathematics as an expression of the Human mind reflects the active will, the contemplative reason, and the desire for aesthetic perfection.” Through the different fields of algebra, analysis, geometry, number theory, statistics, and applied mathematics, the department aims to train students in quantitative reasoning, in dealing with abstraction, in enhancing their sense of formalism, in tackling mathematical problems, and in writing clear and rigorous proofs. The training will help the students acquire a sound balance between abstract generality and colorful individuality, and between the qualitative and quantitative aspects of mathematics. It also will help students master the theory through a clear comprehension of the theoretical aspects without losing sight of applications. Graduates of the Mathematics Department should be well placed to work in various professional areas of education, finance, information technology, or for pursuing graduate studies in mathematics or a related area.

BA or BS in Mathematics

Students opting for the program in mathematics can earn either a BA or a BS degree. The department requires at least 9 credits in courses numbered 200 or above in Understanding the World for the BS degree, and at least 9 credits in courses numbered 200 or above in the arts Cultures and Histories or Societies and Individuals for the BA degree. In both cases, it is recommended that at least 6 of these 9 credits be in disciplines that use quantitative methods and be chosen in conjunction with the students' faculty advisers. The mathematics requirements are the same for both the BA and the BS degrees and consist of a minimum of 39 credits as follows:

MATH 201, MATH 210, MATH 214, MATH 219, MATH 223, MATH 227, MATH 233, MATH 241, and at least one of MATH 220 or MATH 242, and at least 12 more credits chosen from MATH 202 and mathematics courses numbered 213 or above. In addition, students must take CMPS 201 or 203, which is a first course in programming. Students should note that MATH 211 and MATH 212 do not count towards the major course requirements for the BS and BA in mathematics. For pure mathematics major, MATH 211 and MATH 212 may be taken as free electives.

Transfer students who have done well in MATH 218 can count it towards the mathematics major instead of MATH 219, subject to departmental approval. In such a case, the department will usually require the students to take MATH 220.

Students wishing to pursue graduate study in mathematics are strongly urged to take MATH 220, MATH 242, and MATH 213 or MATH 215. They may also want to consider taking one or more graduate course in their senior year. Students interested in high school teaching are encouraged to include MATH 202, MATH 213, MATH 251, and MATH 261 among their courses.

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits). At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Minor in Mathematics

A minor in mathematics requires 18 credits which include MATH 201, MATH 210, MATH 218 or MATH 219, and 9 more credits in mathematics courses numbered MATH 202, MATH 211 or above, or statistics courses numbered STAT 230 or above.

Note: Students can opt for a minor in mathematics or a minor in applied mathematics, but not both.

BA or BS in Applied Mathematics

Students opting for the program in applied mathematics can earn either a BA or a BS degree. The department requires at least 6 credits in courses numbered 200 or above in Understanding the World for the BS degree, and at least 6 credits in courses numbered 200 or above in the arts Cultures and Histories or Societies and Individuals for the BA degree. The mathematics requirements are the same for both the BA and the BS degrees and consist of a minimum of 39 credits as follows:

MATH 201, MATH 202, MATH 210, MATH 212, MATH 218 or MATH 219, MATH 223, STAT 233, MATH 251, MATH 281, at least one of MATH 224 and MATH 227, and at least 9 additional credits numbered 211 and above. These additional credits must include at least two of the following three areas:

- Analysis and Geometry: MATH 213, MATH 214, MATH 215, MATH 224, MATH 225, MATH 227
- Discrete Math and Algebra: MATH 211, MATH 220, MATH 241, MATH 242, MATH 261
- Probability and Statistics: STAT 231, STAT 234 or higher

In addition, students must take CMPS 201 or 203, which is a first course in programming. Moreover, 9 credits must be chosen in one applied discipline or track from the following list:

- Computer Science: CMPS 202, CMPS 214, CMPS 215, CMPS 221, CMPS 231, CMPS 261, CMPS 262
- Economics: ECON 212, ECON 214, ECON 215, ECON 217, ECON 218, ECON 227, ECON 228, ECON 239, ECON 243
- Natural Sciences: PHYS 210, PHYS 211, PHYS 212, PHYS 214, PHYS 217, PHYS 220, PHYS 235, PHYS 236, CHEM 201, CHEM 217, CHEM 218, CHEM 233
- Engineering: CIVE 210, CIVE 310, CIVE 311, CIVE 411, CIVE 610, EECE 210, EECE 290, EECE 330, EECE 340, EECE 442, EECE 490, EECE 491, EECE 641, EECE 693, INDE 301, INDE 302, MECH 201, MECH 230, MECH 310, MECH 314, MECH 320, MECH 332, MECH 412, MECH 414
- Statistics and Applications: STAT 231, STAT 234, STAT 235, STAT 236 or EPHD 213, STAT 237, STAT 238, STAT 239, EPHD 203, CMPS 262, EECE 490, EECE 693
- Actuarial Science: MATH 272, MATH 273, MATH 274

Some of the above tracks can be further subdivided as listed below. Students can use the following classification as a guideline for choosing their 3 track courses.

- Econometrics: ECON 214, ECON 215, ECON 217
- Macroeconomics: ECON 212, ECON227, ECON 228
- Mathematical Economics: ECON 217, ECON 239, ECON 243
- Mechanics: CIVE 210, MECH 201, MECH 230, MECH 320, MECH 332
- Fluid Mechanics and Thermodynamics: MECH 310, MECH 314, MECH 412, MECH 414
- Signal Processing: EECE 210, EECE 290, EECE 340, EECE 442, EECE 491, EECE 641
- Operations Research: INDE 301, INDE 302, INDE 303 or STAT 238
- Structures: CIVE 210, CIVE 310, CIVE 311, CIVE 411, CIVE 610
- Machine Learning: STAT 239, EECE 490, EECE 693
- Statistical Techniques: STAT 231, STAT 234, STAT 235, STAT 236, STAT 237
- Statistics and Probability: STAT 231, STAT 234, STAT 238, STAT 237
- Statistics and Data Science: STAT 231, STAT 234, STAT 239, CMPS 262
- Statistics and Health Sciences: STAT 231, STAT 234, STAT 236, EPHD 203, EPHD 213

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits). At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Minor in Applied Mathematics

A minor in applied mathematics requires 18 credits which include:

- MATH 201, MATH 210, either MATH 218 or MATH 219;
- at least 3 credits chosen from MATH 251 or MATH 281 or Math 350;
- at least 3 credits chosen from MATH 202 or MATH 212;
- 3 credits in mathematics courses numbered MATH 211 or above, or statistics courses numbered STAT 230 or above.

Note: Students can opt for a minor in mathematics or a minor in applied mathematics, but not both.

BA or BS in Statistics

Students opting for the program in statistics can earn either a BA or a BS degree. The department requires at least 6 credits in courses numbered 200 or above in the natural sciences for the BS degree, and at least 9 credits in courses numbered 200 or above in the arts Cultures and Histories or Societies and Individuals for the BA degree. In both cases, it is recommended that at least 6 of these 9 credits be in disciplines that use quantitative methods and be chosen in conjunction with the students' faculty advisers. The Quantitative Thought requirements are the same for both the BA and the BS degrees and consist of a minimum of 45 credits as follows:

- In Statistics: STAT 231, STAT 233, STAT 234, STAT 235, STAT 239, and at least one of STAT 237 or STAT 238
- In Mathematics: MATH 201, MATH 210, MATH 218 or MATH 219, MATH 251
- In Computer Science: CMPS 201 or CMPS 203, CMPS 244
- 9 credits must be chosen from the following list of courses:
  - Statistics and Data Science: STAT 236, STAT 237 or STAT 238, STAT 333, STAT 338, STAT 348
  - Mathematics: MATH 211, MATH 281, MATH 351
  - Computer Science: CMPS 262

Moreover, an additional 9 credits must be chosen from the following list of technical elective courses from applied disciplines or mathematics:

- **Computer Science:** CMPS 202, CMPS 261, CMPS 364, CMPS 365
- **Engineering:** INDE 301, INDE 302, EECE 330, EECE 490, EECE 641, EECE 693
- **OSB:** BUSS 200, MNGT 222, DCSN 200, DCSN 216, DCSN 220
- **Mathematics:** MATH 211, MATH 220, MATH 223, MATH 224, MATH 225, MATH 227, MATH 241, MATH 261, MATH 272, MATH 273, MATH 274, MATH 281, MATH 306, MATH 351

Students planning to pursue higher education in statistics are advised to take their technical electives in advanced mathematics courses, such as MATH 223 and MATH 227.

Students interested in actuarial science are advised to take their technical electives as MATH 272, MATH 273, and MATH 274. Note that, students planning to pursue a career as an actuary have to pass a sequence of professional exams and complete VEE credits (Validation for Educational Experience). Thus, they are also advised to take the following courses within their degree requirements: ECON 211, ECON 212; and the following additional courses above the required 90 credits: BUSS 211, ACTN 210, FINA 210, FINA 220.

Students interested in data science are advised to take their technical electives as EECE 490 and EECE 693 and at least one course from: CMPS 202 or EECE 330, CMPS 261, EECE 641, BUSS 200, MNGT 222, DCSN 200, DCSN 216. They are also advised to take STAT 236 and STAT 237 within their degree requirements.

It is to be noted that STAT 201, STAT 203, STAT 210, and STAT 230 are mainly service courses. STAT 201 is essentially equivalent to EDUC 227, and STAT 210 is essentially equivalent to ECON 213. Students can get credit for only one of the following: STAT 201, STAT 203, STAT 210, STAT 230, STAT 233, EDUC 227, ECON 213.

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits).

At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Minor in Statistics and Data Analysis

A minor in statistics can be pursued via one of two options:

- Option 1: MATH 218 or MATH 219, STAT 231, STAT 233, STAT 234, STAT 235, and one additional course with statistical and data analysis applications to be selected with the approval of the department chair.
- Option 2: MATH 218 or MATH 219, STAT 230, STAT 234, STAT 235 and two additional courses with statistical and data analysis applications to be selected with the approval of the department chair. Note that for economics students pursuing a minor in statistics and data analysis, ECON 213 may be taken in place of STAT 230.

A list of recommended courses with statistical and data analysis applications includes: STAT 236, STAT 237, STAT 238, STAT 239, BIOL 251, CMPS 261 or EECE 690/490 or MECH 658/534, CMPS 262, ECON 214, INDE 303, and INDE 430, INDE 504, PHYS 235, BIOL 370, CHEN 674, CIVE 602, EPHD 320, EPHD 321, EECE 603, EECE 633, EECE 641, EECE 644, EECE 667, EECE 693, ENMG 627, ENMG 622, GEOL 319, MECH 619, MSBA 310.

Minor in Actuarial Science

A minor in actuarial science requires 18 credits which include ECON 211, ECON 212, MATH 272, MATH 273, MATH 274, and STAT 230 or STAT 233.

Course Descriptions

MATH 100 College Algebra 3.0; 3 cr.
Mathematical notations and basic notions; properties of real numbers; solving linear, quadratic, and absolute equations and inequalities; solving system of linear equations; properties of functions and their graphs; straight lines and parabolas and their equations; polynomial operations. MATH 100 may not be taken for credit after a student has passed MATH 101.Every term.

MATH 101 Calculus and Analytic Geometry I 3.1; 3 cr.
Limits, continuity, differentiation with application to curve plotting; Rolle's theorem; integration with application to area, distance, volume, arc-length; fundamental theorem of calculus, transcendental functions. Prerequisite: MATH 100 or based on placement. Every term.

MATH 101I MATH 101 Intensive 0.0; 0 cr.
Mathematical notation and basic notions; properties of real numbers; factoring polynomials; linear and quadratic equations; fractions; inequalities; absolute value equations; angles and trigonometric functions. Based on placement. MATH 101I must be taken simultaneously with MATH 101. Every Term.

MATH 102 Calculus and Analytic Geometry II 3.1; 3 cr.
Techniques of integration, improper integrals, polar coordinates, conic sections, analytic geometry in space, parametric equations, and vector functions and their derivatives. Prerequisite: MATH 101. Every term.

MATH 201 Calculus and Analytic Geometry III 3.1; 3 cr.
Sequences and series, Taylor approximation, Multivariable functions, partial derivatives, multiple integrals, cylindrical and spherical coordinates, integration along curves, Integration of vector fields along curves and on surfaces, Green's theorem, Stokes' theorem, and Divergence theorem. Prerequisite: MATH 102. Every term.

MATH 202 Differential Equations 3.1; 3 cr.
The course introduces techniques for solving ordinary differential equations and analyzing their applications across various models. Topics include: techniques for solving first-order ODEs including existence and stability analysis of autonomous systems. Linear differential equations with constant coefficients, boundary value problems, systems of differential equations, series solutions and Laplace transforms. Numerical methods, with a focus on Euler's method. Some models of application studied in the course are: population models, competition systems, spring/mass Systems, beam deflection, prey-predator model. Pre/corequisite: MATH 201. Every term.

MATH 203 Mathematics for Social Sciences I 3.0; 3 cr.
Mathematical notations and basic notions; properties of real numbers; factoring polynomials; functions and their graphs; straight lines and parabolas and their equations; Gaussian elimination; exponential and logarithmic functions; limits and continuity; basic differential calculus. MATH 203 may not be taken for credit after a student has passed MATH 101, MATH 102 or MATH 201. Prerequisite: MATH 100. Every term.

MATH 204 Mathematics for Social Sciences II 3.0; 3 cr.
Matrix operations, inverses and determinants; elementary combinatorics; introduction to probability; random variables; binomial, normal and Poisson distributions; basic integral calculus; introduction to differential equations; partial derivatives and extremal points of multivariable functions. Prerequisite: MATH 101 or MATH 203. Not open to students majoring in economics. Every term.

MATH 210 Introduction to Analysis 3.0; 3 cr.
The real numbers, completeness, sequences, some basic topology of the real line, compact sets, Heine-Borel theorem, continuous functions, intermediate value theorem, uniform continuity, extreme values, differentiation, mean-value theorem, Taylor's theorem, Riemann integration, sequences and series of functions. Prerequisite: MATH 201. Every term.

MATH 211 Discrete Mathematics 3.1; 3 cr.
Logical reasoning, sets, relations and functions; mathematical induction, counting, and simple finite probability theory; analysis of algorithms, complexity; recurrence relations and difference equations; truth tables and switching circuits; graphs and trees; strings and languages. MATH 211 does not count towards the major course requirements in pure mathematics. Pure mathematics majors may take MATH 211 as a free elective. This course is equivalent to CMPS 211. Every term.

MATH 212 Introductory Partial Differential Equations 3.0; 3 cr.
Partial differential equations as mathematical models in science. Method of characteristics and first-order quasilinear PDEs. Transport and wave equations, D'Alembert formula. Linear evolution equation and their eigensolutions. Fourier series: pointwise convergence, Gibbs phenomena, uniform convergence of sequences and series of functions and of Fourier series, Parseval formula. Application of Fourier series in solving second and higher-order linear PDEs on bounded domains (Heat systems, Laplace and wave equations). Method of separation of variables and Sturm-Liouville systems. Energy methods to study uniqueness, and equilibrium solutions. Fourier transform, inversion formula, and application to solving partial differential equations. MATH 212 does not count towards the major course requirements in pure mathematics. Pure mathematics majors may take MATH 212 as a free elective. Prerequisite: MATH 202. Every term.

MATH 213 Higher Geometry 3.0; 3 cr.
Topics chosen from isometries of Euclidean space, inversion, elements of differential geometry, the Frenet frame, curvature, torsion, the pseudo-sphere, hyperbolic geometry, and affine and projective geometry. Biennially.

MATH 214 Topology I 3.0; 3 cr.
Topological spaces, continuous functions, separation axioms, compactness, connectedness, metrizable spaces, product spaces, quotient topology. Prerequisite: MATH 210. Annually.

MATH 215 Introduction to Differential Geometry 3.0; 3 cr.
Parameterized curves and the Frenet-Serret frame, fundamental theorem for curves, isoperimetric inequality, regular surfaces, Gauss map and the fundamental forms, curvature, geodesics and parallel transport, Gauss-Bonnet theorem. Prerequisites: MATH 201 and MATH 218/219, or consent of instructor. Biennially.

MATH 216 Topology II 3.0; 3 cr.
A senior level course covering more advanced topics in topology. Prerequisite: Consent of instructor. Occasionally.

MATH 218 Elementary Linear Algebra with Applications 3.0; 3 cr.
An introduction to linear algebra at a less theoretical level than MATH 219. Systems of linear equations and Gaussian elimination, vectors in Rn, matrices, determinants, vector spaces, subspaces and dimension, orthogonal projection and least-squares approximation, eigenvalues, eigenvectors, and selected applications. Not open for students majoring in Mathematics. Students cannot receive credit for both MATH 219 and MATH 218. Every term.

MATH 219 Linear Algebra I 3.0; 3 cr.
A rigorous introduction to linear algebra, with emphasis on proof and conceptual reasoning. Vector spaces, linear transformations and their matrix representation, linear independence, bases and dimension, rank-nullity, systems of linear equations, brief discussion of inner products, projections, orthonormal bases, change of basis, determinants, eigenvalues, eigenvectors, and spectral theorem. Students cannot receive credit for both MATH 219 and MATH 218. Prerequisite: MATH 102 or consent of the instructor. Every term.

MATH 220 Linear Algebra II 3.0; 3 cr.
A deeper study of determinants, inner product spaces, and eigenvalue theory. Adjoints and the spectral theorem, primary decomposition, quotient spaces, diagonalization, triangularization, rational and Jordan forms, connection with modules over a PID, dual spaces, bilinear forms, and tensors. Prerequisite: MATH 241 or consent of instructor. Biennially.

MATH 223 Advanced Calculus 3.0; 3 cr.
Metric spaces, normed vector spaces, the derivative as a linear transformation, chain rule, vector versions of mean-value theorem, Taylor's formula, inverse and implicit function theorems, Riemann integration in Rn, differential forms, the general Stokes's theorem, and notions of differential geometry. Prerequisites: MATH 210, and MATH 218 or MATH 219. Annually.

MATH 224 Fourier Analysis and Applications 3.0; 3 cr.
Fourier series, applications of Fourier series to the heat and wave equations, the Fourier transform on Rn, applications of the Fourier transform to the wave and heat equations on Rn, Shannon's sampling formula, the Radon transform, applications of the Radon transform to medical imaging, and the discrete (or fast) Fourier transform. Prerequisites: MATH 210, and MATH 218 or MATH 219. Annually.

MATH 225 Wavelets and Applications 3.0; 3 cr.
Discrete Fourier transform, fast Fourier transform, wavelets on the integers, applications to signal and image processing. Prerequisite: MATH 224. Occasionally.

MATH 227 Introduction to Complex Analysis 3.0; 3 cr.
Complex numbers, analytic functions, integration in the complex plane, Cauchy's integral theorem, Taylor series, Laurent series, singularities, residues, and contour integration. Prerequisites: MATH 210 or (MATH 201 and consent of instructor). Annually.

MATH 233 Advanced Probability and Random Variables 3.0; 3 cr.
Same description as STAT 233. Annually.

MATH 234 Introduction to Statistical Inference 3.0; 3 cr.
Same description as STAT 234. Annually.

MATH 237 Statistical Inference II – Nonparametric Methods 3.0; 3 cr.
Same description as STAT 237. Annually.

MATH 238 Applied Probability Models 3.0; 3 cr.
Same description as STAT 238. Annually.

MATH 241 Introduction to Abstract Algebra 3.0; 3 cr.
Groups, subgroups, homomorphisms, normal subgroups and quotient groups, permutation groups, orbits and stabilizers, statement of Sylow theorems, rings, ideals, homomorphisms and quotient rings, and Euclidean and principal ideal domains. Prerequisite: MATH 219 or MATH 218 with a good understanding of proof, or consent of instructor. Annually.

MATH 242 Topics in Algebra 3.0; 3 cr.
Topics chosen from fields and Galois theory, advanced group theory, ring theory, modules over a PID, and other topics as determined by the instructor. Prerequisite: MATH 241. Biennially.

MATH 251 Numerical Computing 3.1; 3 cr.
Computer number representations and round-off errors; Basic techniques in numerical analysis: root finding; Gauss elimination and PLU decomposition; polynomial and spline interpolation; differentiation and integration, Richardson extrapolation; solving initial value problems for ordinary differential equations and systems of differential equations. Implementations and analysis of algorithms are stressed. Projects using MATLAB or similar tools are assigned. Prerequisites: CMPS 201 or 203 or EECE 230 or EECE 231, and MATH 201. Prerequisite or Corequisite: MATH 218 or MATH 219. This course is equivalent to CMPS 251. Every term.

MATH 261 Number Theory 3.0; 3 cr.
Prime factorization, the Euclidean algorithm, congruences, quadratic reciprocity, some Diophantine equations, binary quadratic forms, and continued fractions. Prerequisite: MATH 219 or consent of instructor. Annually.

MATH 271 Set Theory 3.0; 3 cr.
Operations on sets and families of sets, ordered sets, transfinite induction, axiom of choice and equivalent forms, and ordinal and cardinal numbers. Occasionally.

MATH 272 Mathematical Interest Theory 3.0; 3 cr.
This course develops a fundamental understanding of the concepts of financial mathematics and how those concepts are applied in calculating present and accumulated values for various streams of cash flows. Specific topics to be covered include: measurement of simple and compound interest, accumulated and present value, annuities, yield rates, amortization schedules, sinking funds, bonds, securities and related funds. It also includes material on financial derivatives. This course covers most of the syllabus of the SOA/CAS exam FM/2. Prerequisite: MATH 102 or MATH 204, or consent of instructor. Annually.

MATH 273 Actuarial Mathematics I 3.0; 3 cr.
Same description as STAT 273. Annually.

MATH 274 Actuarial Mathematics II 3.0; 3 cr.
Same description as STAT 274. Annually.

MATH 281 Numerical Linear Algebra 3.0; 3 cr.

Basic Linear Algebra Subprograms (BLAS Operations of order 1, 2 and 3). Norms of vectors and matrices. Gram-Schmidt orthogonalization. Eigenvalues and Schur's decompositions. Singular value decomposition and pseudo-inverse of a rectangular matrix. Gauss transforms and PLU decomposition. Cholesky decomposition for symmetric positive definite matrices. Householder transforms and QR decomposition. Application to finding solutions to least square and linear regression problems. Iterative (indirect) methods to solve linear systems of equations: Jacobi, Gauss-Seidel, successive over-relaxation, gradient methods. Basic algorithms for computing eigenvalues of square matrices. This course is equivalent to CMPS 254. Prerequisites: MATH 218 or MATH 219, and CMPS 201 or CMPS 203 or EECE 230 or EECE 231. Annually.

MATH 293 Senior Tutorial Courses 3.0; 3 cr.

Prerequisite: senior standing.

BA in Mathematics: 39 Credits in Mathematics

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Understanding the World (6)	Major requirements + Quantitative Reasoning (42)	Community-Engaged Learning (3), Societies and Individuals (6)
Lecture Courses (9+12+6+42 +3+6)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Required courses (6)	Required mathematics courses (27): MATH 201, 210, 214, 219, 223, 227, 233, 241, and at least one of 220 or 242. Required mathematics electives (12): MATH 202, and/or mathematics courses numbered 213 and above. Required programming course (3): CMPS 201 or 203	Required Community engaged learning course (3) Required Societies and Individuals courses (6)

BS in Mathematics: 39 Credits in Mathematics

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Understanding the World (9)	Major requirements + Quantitative Reasoning (42)	Community Engaged Learning (3), Societies and Individuals (6)
Lecture Courses (9+12+9+42+3+6)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Required courses (9)	Required mathematics courses (27): MATH 201, 210, 214, 219, 223, 227, 233, 241, and at least one of 220 or 242 Required mathematics electives (12): MATH 202, and/or mathematics courses numbered 213 and above. Required programming course (3): CMPS 201 or 203	Required Community engaged learning course (3) Required Societies and Individuals courses (6)

BA in Applied Mathematics: 39 Credits in Mathematics

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Understanding the World (3)	Major requirements + Quantitative Reasoning (42)	Applied Tracks (9)	Community-Engaged Learning (3), Societies and Individuals (6)
Lecture Courses (9+12+3 +42+9 +3+6)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Required course (3)	Required Applied Mathematics courses (30): MATH 201, 202, 210, 212, 218 or 219, 223, 233, 251, 281, and at least one of 224 or 227. Required Mathematics electives (9): MATH courses numbered 211 and above. These credits must include at least two of the following three areas: >>Analysis and Geometry >>Discrete Math and Algebra >>Probability and Statistics Required Computer Science course (3): CMPS 201 or 203	9 credits chosen in one of the following applied disciplines or tracks: Computer Science Economics Natural Sciences Engineering Actuarial Sciences Statistics and Applications	Required Community-engaged learning course (3) 6 credits in Societies and Individuals. Must include one Economics course (3): ECON 211

BS in Applied Mathematics: 39 Credits in Mathematics

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Understanding the World (6)	Major requirements + Quantitative Reasoning (42)	Applied Tracks (9)	Community-Engaged Learning (3), Societies and Individuals (6)
Lecture Courses (9+12+6 +42+9 +3+6)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Required courses (6)	Required Applied Mathematics courses (30): MATH 201, 202, 210, 212, 218 or 219, 223, 233, 251, 281, and at least one of 224 or 227. Required Mathematics electives (9): MATH courses numbered 211 and above. These credits must include at least two of the following three areas: Analysis and Geometry Discrete Math and Algebra Probability and Statistics Required Computer Science course (3): CMPS 201 or 203	9 credits chosen in one of the following applied disciplines or tracks: Computer Science Economics Natural Sciences Engineering Actuarial Sciences Statistics and Applications	Required Community-engaged learning course (3) 6 credits in Societies and Individuals. Must include one Economics course (3): ECON 211

Course Descriptions

STAT 201 Elementary Statistics for the Social Sciences 3.0; 3 cr.
Data organization and frequency distributions; measures of central tendency and dispersion; probability and random variables; binomial and normal distributions; estimation, and hypothesis testing. Open only to arts students whose mathematical preparation does not allow them to take STAT 210. Students who take STAT 201 will not receive credit for STAT 203, STAT 210, STAT 230, STAT 233, or ECON 213. Every term.

STAT 203 Statistics for Gender Studies 3.0; 3 cr.
This course is tailored for students interested in gender studies. The course will primarily use gender data for examples and case studies. Topics include: Populations, samples, and sampling error; types of data, frequency distributions, and graphical displays of data; empirical definition of probability and probability distributions; conditional probability, independence, random variables, binomial, normal, and t distributions; hypothesis testing; linear regression and correlation; chi squared test; and analysis of variance. This course can also serve as a course in general research methods. Students who take STAT 203 will not receive credit for STAT 201, STAT 210, STAT 230, STAT 233, or ECON 213. Every term.

STAT 210 Elementary Statistics for the Sciences 3.0; 3 cr.
Populations, samples, and sampling error; types of data, frequency distributions, and graphical displays of data; measures of central tendency and dispersion; probability and probability distributions; conditional probability, independence, Bayes' rule, and counting rules; discrete and continuous distributions, random variables, binomial, Poisson, normal, and t distributions; point and interval estimation and hypothesis testing; chi squared tests and One way Analysis of variance, linear regression and correlation. Computer packages may be used to illustrate methods. Students who successfully finish STAT 210 will not receive credit for STAT 201, STAT 203, STAT 230, STAT 233, or ECON 213. Every term.

STAT 230 Introduction to Probability and Statistics 3.1; 3 cr.
Display of data; probability models; independence and conditioning; methods of counting; discrete and continuous random variables and their individual and joint distributions; mixture of distributions; expectation of random variables; variance, covariance and correlation; Chebyshev's inequality; law of large numbers; central limit theorem; point and interval estimation; hypothesis testing. Prerequisite: MATH 201. Students who successfully finish STAT 230 will not receive credit for STAT 201, STAT 203, STAT 210, STAT 233, or ECON 213. Every term.

STAT 231 Introductory Statistical Computing 3.0; 3 cr.
This course introduces the principles of statistical thinking as well as the main problems of statistics with a computational emphasis and perspective. The course begins with a primer on the R statistical environment, and the problems of pseudorandom number generation of both uniform and non-uniform random variates. It then proceeds to develop the main statistical ideas of sampling, inference (point and interval estimation, hypothesis testing) and concludes with simple linear regression as a first example of modeling. Methods are illustrated with R. Annually.

STAT 233 Advanced Probability and Random Variables 3.0; 3 cr.
Axiomatic definition of probability, random variables, univariate and multivariate probability density functions and cumulative distribution functions; expectation; moment generating function; conditional distribution; families of discrete and continuous random variables; distribution of functions of random variables; stochastic convergence and convergence of distribution functions; the law of large numbers and the central limit theorem. Prerequisite: MATH 201. Students who successfully finish STAT 233 will not receive credit for STAT 201, STAT 203, STAT 210, STAT 230, or ECON 213. Annually.

STAT 234 Statistical Inference I - Parametric Methods 3.0; 3 cr.
Convergence in probability, in distribution, in mean. Review of the central limit theorem and the weak law of large numbers. Point estimation. Method of moments. Maximum likelihood. Fisher information. Information bound. Properties of maximum likelihood estimation. Newton Raphson and EM algorithms. Sufficiency. Exponential families. Blackwell Rao Theorem. The bootstrap method. Confidence intervals. Hypothesis Testing. Errors. Optimality for tests. Neyman–Pearson tests and optimal tests for one-sided hypotheses. Generalized likelihood ratio tests. Elements of Bayesian estimation and decision theory. Prerequisites: STAT 233, or STAT 230, or consent of instructor. Annually.

STAT 235 Applied Regression Analysis 3.0; 3 cr.
Simple Linear Regression. Multiple Regression. Main Effects and Their Interpretation. Complex Regressors. Testing and Analysis of Variance. Weighted Least Squares. Variance Stabilizing Transformations. The Delta Method. Bootstrap. Cross Validation. Regression Diagnostics. Variable Selection. Penalized Regression. Logistic Regression, Poisson Regression. Prerequisites: MATH 218 or MATH 219; STAT 234, or STAT 230 with the consent of the instructor. Annually.

STAT 236 Sampling Techniques 3.0; 3 cr.
This course teaches various methods and analyses for sampling from finite populations, which are essential for conducting statistical surveys in social, government and health statistics. It covers various schemes of sampling including simple random sampling, systematic and cluster sampling, stratified sampling, multi-stage sampling, ratio and regression sampling, double sampling and the problem of non-response. Estimation of parameters and properties of estimates are discussed. In particular, the Horwitz-Thompson estimator and the generalized Horwitz-Thompson estimator and probability-proportional-to-size (PPS) sampling are studied under each sampling scheme. Prerequisite: STAT 234. Biennially.

STAT 237 Statistical Inference II – Nonparametric Methods 3.0; 3 cr.
Methods of analyzing data when a parametric assumption is adopted. The course begins with classical methods of estimation and testing based on order statistics (such as quantile estimation). The course continues with testing based on ranks (including the sign test, Wilcoxon signed-rank test, Mann-Whitney two sample test, Kruskall-Wallis test) and testing based on the empirical distribution function (including the Kolmogorov-Smirnov test of goodness of fit). The notion of asymptotic relative efficiency is carefully studied and applied to some of the tests. The course also covers the modern concepts of density estimation in one and higher dimensions (histogram and kernel estimation), selection of optimal kernel and optimal bandwidth. Prerequisite: STAT 234 or consent of instructor. Biennially.

STAT 238 Applied Probability Models 3.0; 3 cr.
Conditional probability and expectation; discrete and continuous time Markov chains; Chapman-Kolmogorov difference and differential equations; limiting probabilities; branching, Poisson, and birth and death processes; distribution of arrival times; queuing theory. Prerequisites: MATH 218 or MATH 219; and STAT 233, or STAT 230 with consent of instructor. Annually.

STAT 239 Statistical Learning 3.0; 3 cr.
Introduction to supervised learning. Loss functions and population risk. Estimates of risk. Resampling methods (cross-validation and the bootstrap). k-nearest neighbors. Linear and polynomial regression, logistic regression and linear discriminant analysis. Model selection and regularization methods (ridge regression and lasso). Non-linear models and generalized additive models. Tree-based methods, random forests and boosting. Support-vector machines. Feedforward and convolutional neural networks. Prerequisites: MATH 218 or MATH 219; STAT 234 or STAT 230 with consent of the instructor. Annually.

STAT 273 Actuarial Mathematics I 3.0, 3 cr.
This course covers models for single life contingencies, present-value random variables. It provides an introduction to survival models, force of mortality, mortality tables, life annuities, calculation of premium, policy values for various cash flows. This course covers portions of the SOA Exam FAM. Prerequisites: MATH 202, STAT 233 or STAT 230 with consent of instructor, and MATH 272 or consent of the instructor. Annually.

STAT 274 Actuarial Mathematics II 3.0, 3 cr.
Multiple life contingencies and multiple state models with the underlying theory of Markov chains, multiple decrement models and construction of multiple decrement tables, introduction to the mathematics of pension, valuation of benefits and reserves (with and without expenses). This course covers portions of the SOA Exam FAM. Prerequisite: MATH 202, STAT 233 or STAT 230 with consent of instructor, and MATH 272 or consent of the instructor. Annually

BA in Statistics: 39 Credits in Statistics/Mathematics

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Understanding the World (3)	Major requirements + Quantitative Reasoning (45)	Technical Electives (9)	Community Engaged Learning (3), Societies and Individuals (6)
Lecture Courses (9+12 +3+45+ 9+3+6)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Required course (3)	Required mathematics courses (12): MATH 201, 210, 218 or 219, 251 Required statistics courses and data science (18): STAT 231, 233, 234, 235, 239 and at least one of 237 or 238 Required computer science courses (6): CMPS 201 or 203, CMPS 244 Electives MATH/ STAT/CMPS (9): STAT 236, 237 or 238, 333, 338, 348, MATH 211, 281, 351, CMPS 262	9 credits from the following list: Computer Science: CMPS 202, 261, 364, 365 Engineering: INDE 301, 302, EECE 330, 490, 641, 693 OSB: BUSS 200, MNGT 222, DCSN 200, 216, 220 Mathematics: MATH 211, 220, 223, 224, 225, 227, 241, 261, 272, 273, 274, 281, 306, 351	Required Community-engaged learning course (3) Required Societies and Individuals courses (6)

BS in Statistics: 39 Credits in Statistics/Mathematics

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Understanding the World (6)	Major requirements + Quantitative Reasoning (45)	Technical Electives (9)	Community Engaged Learning (3), Societies and Individuals (6)
Lecture Courses (9+12 +6+45+ 9+3+6)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Required courses (6)	Required mathematics courses (12): MATH 201, 210, 218 or 219, 251 Required statistics and data science courses (18): STAT 231, 233, 234, 235, 239 and at least one of 237 or 238 Required computer sciences courses (6): CMPS 201 or 203, CMPS 244 Electives MATH/ STAT/CMPS (9): STAT 236, 237 or 238, 333, 338, 348, MATH 211, 281, 351, CMPS 262	9 credits from the following list: Computer Science: CMPS 202, 261, 364, 365 Engineering: INDE 301, 302, EECE 330, 490, 641, 693 OSB: BUSS 200, MNGT 222, DCSN 200, 216, 220 Mathematics: MATH 211, 220, 223, 224, 225, 227, 241, 261, 272, 273, 274, 281, 306, 351	Required Community-engaged learning course (3) Required Societies and Individuals courses (6)

Department of Philosophy

Chairperson	Gannagé, Emma
Professors	Brassier, Raymond; Haydar, Bashshar; Johns, Christopher
Associate Professors	Bashour, Bana ; Gannagé, Emma ; Muller, Hans D.
Assistant Professors	Mohammadian, Mousa; Turan, Caner
Lecturers	Agha, Saleh; Baassiri, Mahmoud; Barakat, Karim; Chehayeb, Fidaa; Talhouk, Omar
Instructors	El Hassanieh, Mahmoud; Kasab, Jana; Sabra, Zainab; Salloum, Rabih; Samaha, Raid; Wahab, Karam

The Department of Philosophy offers programs leading to the degrees of bachelor of arts and master of arts in philosophy. Requirements for transfer to the department include approval by the department and a grade of C+ or more in any two Cultures and Histories courses (excluding the communication skills requirements in Arabic and English).

Mission Statement

The undergraduate program in philosophy provides students with a knowledge of key historical and contemporary philosophers and philosophical problems, together with a range of responses to those problems. It promotes respect for clarity, truth, critical reflection and rational argument. It promotes independence of thought rooted in a fair-minded understanding of opposing views. It strives to equip students with the knowledge and skills needed to navigate relevant portions of the contemporary philosophical terrain; competence at critical analysis; and the ability to write about abstract issues in a clear, nuanced and compelling manner. The undergraduate program in philosophy also seeks to impart an awareness of the application of philosophical thought to other academic disciplines or to matters of public interest, encouraging students to apply their philosophical skills more widely.

BA in Philosophy

Students majoring in philosophy are required to take a total of at least 36 credits of philosophy courses, which must include PHIL 211, PHIL 218, one of PHIL 205, 206, 209 or 210, two of PHIL 212, PHIL 213, PHIL 214, and PHIL 225, and at least two of the seminar courses, which are numbered PHIL 250- 262. One of those courses must be a Writing in the Disciplines course. Students should also choose, under the supervision of the department, a balanced program of systematic and historical courses. In fulfillment of university requirements, majors must also take the following:

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits). At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities.

Minor in Philosophy

Students choosing to complete a minor in philosophy are required to take a total of 15 credits in philosophy, including at least two of PHIL 211, PHIL 212, PHIL 213, PHIL 214, PHIL 225.

Minor in Ethics of Artificial Intelligence (AI)

The minor in ethics of artificial intelligence, offered jointly by the Department of Philosophy and the Department of Computer Science, provides students with the critical tools and frameworks necessary to navigate the complex ethical challenges posed by artificial intelligence. By engaging with topics such as safety and security, privacy, transparency, accountability, and bias, students develop a deeper understanding of how AI technologies impact society. This minor encourages students to critically examine the broader consequences of AI systems, helping them explore issues like data privacy concerns, the risks of algorithmic bias, and the need for transparency in decision-making processes. It fosters an ethical mindset, empowering students to ask key questions about the fairness, accountability, and potential harm of AI applications, while also promoting responsible development and deployment of AI technologies in a way that safeguards human rights and societal well-being.

Students choosing to complete a minor in ethics of artificial intelligence are required to take a total of 15 credits distributed among the following courses:

1. PHIL208A/CMPS 269, Ethics of AI
2. PHIL 210, Ethics
3. PHIL 221 Philosophy of Mind or PHIL228, Philosophy of Psychology
4. CMPS 203 Programing for Everyone or CMPS 201 Introduction to Programming
5. CMPS 260 AI for Everyone or CMPS 261 Machine Learning.

Note that the description of the philosophy courses is in the list below, while the description of the CMPS courses is to be found in the catalogue of the Department of Computer Science.

Course Descriptions

PHIL 101 Applied Philosophy 3.0; 3 cr.
A course that deals with philosophical questions which have practical import; it aims to introduce students to the philosophical mode of analysis. Every term.

PHIL 102 Philosophical Classics 3.0; 3 cr.
An introduction to the thought of some major figures in the history of philosophy. Every term.

PHIL 201 Introduction to Philosophy 3.0; 3 cr.
An introduction to philosophy and its methods through an analysis of traditional issues in ethics, epistemology, metaphysics, and the philosophy of religion. Every term.

PHIL 202 (A, B, C ..) Topics in Applied Philosophy 3.0; 3 cr.
This course addresses a broad variety of philosophical issues and questions that relate to different practices and aspects of life, for example death and dying; the notion of care; displacement, etc. on which students will reflect using philosophical skills of analysis and critical thinking. Annually.

PHIL 205 Bio-Medical Ethics 3.0; 3 cr.
A philosophical examination of a number of ethical topics in the field of biology and medicine, such as abortion, physician-assisted suicide, eugenics, genetic engineering, allocation of medical resources, experimentation on animals and humans, and so on. Annually.

PHIL 206 Business Ethics 3.0; 3 cr.
A philosophical examination of a number of ethical topics arising in the areas of business and management, such as fraud and corruption, product safety, insider trading, honesty in advertising, discriminatory hiring practices, and so on. Occasionally.

PHIL 208 Topics in Applied Ethics (A, B, C, D, E...) 3.0; 3 cr.
A philosophical examination of the ethics of a particular field of ethical application, such as technology, food, war, engineering, psychology, etc. The course will focus on one such area, varied according to instructor and section. Annually.

PHIL 209 Environmental Ethics 3.0; 3 cr.
An attempt to identify and discuss the major ethical and philosophical issues related to the environment and to determine the environment-related responsibilities and obligations at the individual and collective levels. Every term.

PHIL 210 Ethics 3.0; 3 cr.
An introduction to some of the major normative ethical theories based on the study of the original writings of selected philosophers, including a section on applied ethics. Every term.

PHIL 211 Introduction to Logic 3.0; 3 cr.
An introduction to formal and informal logic, including argument analysis, informal fallacies, natural deduction methods in propositional and first-order predicate logic. Every term.

PHIL 212 Ancient Greek and Roman Philosophy 3.0; 3 cr.
An overview of some of the main philosophical trends and schools of thought in ancient Greek and Roman philosophy from the pre-Socratics to the Hellenistic period. Annually.

PHIL 213 Medieval Philosophy 3.0; 3 cr.
This course offers a survey of some of the main philosophical issues of central concern to philosophers during the medieval period from Augustine to Aquinas and beyond (up to the 14th century) including Islamic philosophers. It explores questions such as the existence of God, whether the world is created or eternal, free will, the possibility of knowledge, the problem of evil etc. Annually.

PHIL 214 History of Modern Philosophy 3.0; 3 cr.
A survey of early modern philosophy, from Descartes to Kant. Annually.

PHIL 215 Nineteenth Century Philosophy 3.0; 3 cr.
An introductory survey of post-Kantian philosophy, with emphasis on Fichte, Schelling, Hegel, Schopenhauer, Kierkegaard, and Nietzsche. Alternate years.

PHIL 216 Political Philosophy 3.0; 3 cr.
An examination of the main issues of political philosophy, such as political obligation, justice, political rights, and other issues. Annually.

PHIL 217 Aesthetics 3.0; 3 cr.
An examination of the central problems and issues that arise in the interpretation, analysis, and evaluation of works of art. Alternate years.

PHIL 218 Metaphysics and Epistemology 3.0; 3 cr.
An investigation of the most fundamental concepts involved in our thoughts about the world, including the nature of truth, knowledge, causality, substance, space, and time. Annually.

PHIL 219 Existentialism 3.0; 3 cr.
An introduction to existentialist philosophy within the context of nineteenth-century and twentieth-century philosophy. Alternate years.

PHIL 220 Symbolic Logic 3.0; 3 cr.
A study of the axiomatization and the meta-theory of classical propositional and predicate logic, first-order theories, as well as related philosophical issues. Prerequisite: PHIL 211. Occasionally.

PHIL 221 Philosophy of Mind 3.0; 3 cr.
An introductory examination of contemporary accounts of the nature of the mind and of the major philosophical theories of mind, including machine functionalism. Annually.

PHIL 222 Philosophy of Science 3.0; 3 cr.
An introduction to the philosophical problems and issues that arise in the attempt to understand the nature of science. Alternate years.

PHIL 223 Philosophy of Language 3.0; 3 cr.
An introductory examination of various contemporary accounts of the nature of language and meaning. Alternate years.

PHIL 224 Philosophy of Religion 3.0; 3 cr.
An in-depth survey of the main philosophical questions connected to religion, including questions about religion as a feature of human experience, as well as questions connected to the nature of God, evil, free will, and so on. Alternate years.

PHIL 225 History of Moral Philosophy 3.0; 3 cr.
A survey of some major historical traditions in moral philosophy, including at least one figure from ancient or medieval philosophy, and at least one figure from modern philosophy. Alternate years.

PHIL 226 Ethical Theory 3.0; 3 cr.
An examination of some theories about the moral status of actions or character, or about the overall nature of morality itself. Alternate years.

PHIL 227 Marx and Philosophy 3.0; 3 cr.
This course examines the philosophical foundations of Marx's critique of capitalism. It focuses on the fundamental concepts of Marx's critical theory: alienation, practice, labor, value, production, commodity, class and contradiction. Alternate years.

PHIL 228 Philosophy of Psychology 3.0; 3 cr.
This course explores foundational questions about psychology as a scientific discipline, examining how philosophical analysis can deepen our understanding of psychology's methods, assumptions, and implications. Alternate years.

PHIL 230 Philosophy of Plato 3.0; 3 cr.
An introduction to some of Plato's major dialogues. Alternate years.

PHIL 231 Philosophy of Aristotle 3.0; 3 cr.
An introductory examination of the physics, metaphysics, logic, ethics, and politics of Aristotle. Alternate years.

PHIL 232 Islamic Philosophy 3.0; 3 cr.
An examination of the philosophical and religious thought of the major philosophers of Islam. Offered either in Arabic or in English. Alternate years.

PHIL 248 Philosophical Logic 3.0; 3 cr.
An introduction to basic concepts and tools which, in addition to being of interest by themselves, also inform various philosophical discussions and are taken for granted in different areas of contemporary philosophy. Occasionally.

PHIL 249 Philosophy of Feminism 3.0; 3 cr.
An examination of philosophical issues relating to gender relations and the foundations of feminist theory; issues addressed primarily involve the ethical or epistemological content of feminist theory. Alternate years.

PHIL 250 Special Topics in Logic 3.0; 3 cr.
May be repeated for credit. Occasionally.

PHIL 251 Special Topics in Ethics 3.0; 3 cr.
May be repeated for credit. Occasionally.

PHIL 252 Special Topics in Political Philosophy 3.0; 3 cr.
May be repeated for credit. Occasionally.

PHIL 253 Special Topics in Aesthetics 3.0; 3 cr.
May be repeated for credit. Occasionally.

PHIL 254 Special Topics in Metaphysics 3.0; 3 cr.
May be repeated for credit. Occasionally.

PHIL 255 Special Topics in Epistemology 3.0; 3 cr.
May be repeated for credit. Occasionally.

PHIL 256 Special Topics in the Philosophy of Science 3.0; 3 cr.
May be repeated for credit. Occasionally.

PHIL 257 Special Topics in the Philosophy of Language 3.0; 3 cr.
May be repeated for credit. Occasionally.

PHIL 258 Special Topics in the Philosophy of Mind 3.0; 3 cr.
May be repeated for credit. Occasionally.

PHIL 260/261 Special Topics in the History of Philosophy 3.0; 3 cr.
Occasionally.

PHIL 262/263 Special Topics in Contemporary Philosophy 3.0; 3 cr.
Occasionally.

PHIL 271 Directed Courses in Philosophy 3-6 cr.
Prerequisite: consent of instructor. Offered on demand.

Community Engaged Learning Courses

PHIL 200A CEL- Fundamentals in Civic Engagement 1 cr.
A one credit online course that entails the fundamentals of civic engagement and field reports developed by students; an opportunity to recognize some of the prominent student-led initiatives, that can be used as references to further inspire their peers. The course is self-paced and fully online with about 14 hours of course content. It is divided into two modules:

1. Theoretical underpinning of civic engagement: introduces students to the fundamental concepts and perspectives of civic engagement and the multiple pathways, and practices of community engagement and support. Content is developed by specialized AUB faculty and staff.
2. Students' field reports: showcase field reports of student-led community support projects developed under the guidance of CCECS. Each case reflects a societal problematic and is portrayed in four sections: (a) global challenge, (b) national manifestation, (c) localization, and (d) pilot implementation.

PHIL 200B CEL- Volunteering Rotations 2 cr.
Following the completion of PHIL 200A, students choosing this course will complete not less than 40 hours of volunteering activities with community-based organizations (CBOs) serving vulnerable populations. Students register in activities that match their interests, skills, and convenience with their academic schedule. The volunteering duration may vary between short-term (one day) and long-term (from two weeks up to the end of the semester), depending on the nature of the activity itself and the assigned roles and responsibilities. Students will also fulfill the requirement through participation in seminars, workshops and conferences related to civic issues. Prerequisite: PHIL 200A.

PHIL 200C CEL- Community Service Project 2 cr.
Following the completion of the PHIL 200A, students choosing this course will develop a Community Service Project (CSP) spanning over a duration of at least 40 hours. A CSP is a student-led initiative that responds to a (a) pressing challenge facing vulnerable communities, by examining its root-cause to identify a (b) problematic and propose a (c) pilot intervention. This journey engages students in a (d) participatory research process with stakeholders and community members emphasizing (e) local knowledge as a main source for collecting primary information. Prerequisite: PHIL 200A.

PHIL 200D CEL- Community-Based Internship 2 cr.
Following the completion of the PHIL 200A, students choosing this course will complete not less than 40 hours of community-based internship (CBI) integrating their academic learning with hands on experience in a real-world context. Interns will complete this requirement with a community-based organization (CBO) that offers its expertise to support vulnerable groups. Prerequisite: PHIL 200A.

24 + 12 Credits in Philosophy

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (Min. 6)	Sciences, Math, and Technology (Unspecified), Understanding the World, Quantitative Reasoning (9:3/6+3/6)	Community-Engaged Learning (3)
Lecture Courses (9+12+36 +6+9+3)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values. Philosophy courses (15): PHIL 211(3), 218(3); one course from the following: 205(3), 206(3), 209(3), 210(3); two courses from the following: 212 (3), 213(3), 214(3), 225(3). 8 elective courses from the following lecture and/or seminar courses (24): the following lecture 201(3), 202 (3); 205(3) 206(3), 208(3), 209(3), 210(3), 212 (3), 213(3), 214(3), 215(3), 216(3), 217(3), 218(3), 219(3), 220(3), 221(3), 222(3), 223(3), 224(3), 225(3), 226(3), 227(3), 228 (3); 230(3), 231(3), 232(3), 248 (3), 249(3) Elective philosophy courses: PHIL 250(3), 251(3), 252(3), 253(3), 254(3), 255(3), 256(3), 257(3), 258(3), 259(3), 260(3), 261(3), 262(3), 263(3)	Electives (6)	Electives (9): a course in computer literacy is recommended Philosophy majors can satisfy this requirement with any Quantitative Reasoning course (including PHIL 220) except for PHIL 211	Requirement course (3)
Seminar (33)					
Laboratory (0)				Computer Lab (3)	
Research Project (93)		PHIL 210, 212–224, 230–232, 248–263			

Department of Physics

Chairperson	Kazan, Michel
Professor Emeritus	Mavromatis, Harry
Professors	Antar, Ghassan; Chamseddine, Ali; Isber, Samih; Kazan, Michel; Klushin, Leonid; Sabra, Wafic Ali; Tabbal, Malek; Touma, Jihad
Assistant Professors	Haidar, Mohamad; Najem, Sara
Lecturers	Al Sayegh, Amara; Barakat, Nourhan; Cheaib, Racha; Harajli, Zeinab; Hosseiky Malaeb, Ola; Saad, Cynthia
Instructors	Abou Daher, Hanin; Ayyash, Rosa; Hachem, Marielle

BS in Physics

Mission Statement

The program leading to the bachelor of science emphasizes the fundamental concepts and principles of physics and their roles in a variety of disciplines with a liberal arts setting. The educational focus of the Physics Department is to provide the students with high-quality instruction in theoretical and experimental physics. Consequently, theoretical courses, together with computer modeling experience and a comprehensive set of laboratory experiments, introduce the students to various methods of inquiry and research in physics. The emphasis is not only on subject instruction, but also on the development of communication and teamwork skills, as well as critical and analytical thinking. The program is designed to graduate well-rounded, free-thinking individuals with inquisitive minds who are well prepared for further study in basic and applied research and are capable of pursuing professional careers in a variety of fields.

The Department of Physics offers courses at the undergraduate level leading to a bachelor's degree in physics.

The requirements for a BS in physics are 90 credits for students entering at the sophomore level.

Degree Requirements

The degree requirements are divided into the general education requirements, set by the university in accordance with its mission statement as a liberal art institution, and the physics requirements set by the Physics Department.

The general education requirements include:

- 9 credits in Understanding Communication divided into 3 credits in Arabic and 6 credits in English
- 9 credits in Cultures and Histories
- 3 credit in Human Values. At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA
- 3 credits in Community Engaged Learning
- 6 credits in Societies and Individuals
- 3 credits in one Understanding the World course must be from outside the major and approved as a General Education course.
- At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

The physics requirements include:

- 39 credits in physics divided into 27 credits of required physics courses, 6 credits elective physics courses, and 6 credits of required physics lab courses (the total number is 40 credits if PHYS 228/228L are chosen as an elective)
- 9 credits in Quantitative Reasoning including 6 credits in Math (MATH 201 and 202) and 3 credits in CMPS 201 or EECE 230
- 9 credits of free electives

The program for the physics major includes the following required courses: PHYS 212, PHYS 214, PHYS 216, PHYS 217, PHYS 221L, PHYS 220, PHYS 222, PHYS 235, PHYS 236, PHYS 257L, PHYS 299A, and PHYS 299B. Moreover, two elective courses must be selected from PHYS 218, PHYS 223, PHYS 225, 226, PHYS 228/228L, PHYS 231, PHYS 232, PHYS 249, or any other elective offered in PHYS. Also required are the following courses in mathematics: MATH 201, MATH 202, and CMPS 201 or EECE 230.

Freshman students who intend to major in physics are required to complete PHYS 101 and PHYS 101L with a minimum cumulative average of 2.3 and to complete MATH 101 and MATH 102 (or their equivalent) with a minimum cumulative average of 2.3. More details can be found under the Freshman Courses section of this catalogue.

Students who wish to transfer to physics must obtain a cumulative average of at least 2.3 in the physics courses normally taken in the sophomore year and a cumulative average of at least 2.3 in MATH 201 and 202 before they are allowed to proceed to junior level courses.

Physics majors whose physics average falls below 2.3 or whose cumulative average in MATH 201 and 202 is below 2.3 after three terms in the major will be dropped from the department.

The minor in physics requires 18 credits including PHYS 212, 221L and one of the following three courses (PHYS 210, PHYS 211 or PHYS 214), plus 9 credits selected from PHYS 217, PHYS 220, PHYS 226, PHYS 235, PHYS 236 or a special topic course.

PHYS 101, PHYS 101L, PHYS 210, PHYS 210L, PHYS 211, PHYS 211L, and PHYS 212 are introductory courses for students of chemistry or engineering.

PHYS 101, PHYS 101L, PHYS 103, PHYS 103L, PHYS 204, PHYS 204L, PHYS 205, PHYS 205L, PHYS 206 and PHYS 206L are introductory courses for students in nursing, public health, biology, petroleum geosciences, and for students wishing to enter the medical school but are not physics or chemistry majors. However, PHYS 101 and PHYS 101L are required for freshman students planning to join the physics major.

PHYS 204, PHYS 204L, PHYS 205 and PHYS 205L, PHYS 206 and PHYS 206L, are not equivalent totally or in part to the following: PHYS 210, PHYS 210L, PHYS 211, PHYS 211L or PHYS 212. Students shall receive credit for courses in only one of the preceding two sets.

Course Descriptions

PHYS 101 Introductory Physics I 4.0; 4 cr.
Measurements, motion in one dimension, vectors, motion in two dimensions, Newton's laws with applications, work and energy, circular motion, linear momentum and collisions, rotation and angular momentum, oscillations, gravity, and elements of fluid mechanics. Pre/corequisite: MATH 101. Students shall receive credit for only one of PHYS 101 or PHYS 103. Annually.

PHYS 101L Introductory Physics Laboratory I1.2; 1 cr.
Error analysis, measuring devices, speed and acceleration, measurement of gravitational acceleration, forces, friction, circular motion, conservation of momentum, conservation of energy, ballistic pendulum, rotation, and simple harmonic motion. Pre/corequisite: PHYS 101. Annually.

PHYS 103 Physics for the Life Sciences 3.0; 3 cr.
Units and dimensions, scalars and vectors, kinematics in one and two dimensions, dynamics, work and energy, collisions, gravitation, and rotational motion. Students shall receive credit for only one of PHYS 101 or PHYS 103. Every term.

PHYS 103L Physics for the Life Sciences Laboratory 1.2 ; 1 cr.
Error analysis, measurements, position, speed and acceleration, ballistic pendulum static and dynamic forces, Atwood's machine, Linear Air Track I, collision, centripetal force and rotational inertia. Pre/corequisite: PHYS 103. Annually.

PHYS 200 Understanding the Universe 3.0; 3 cr.
An introductory course in astronomy. Basic astronomical tools, properties of the earth, solar system, sun, electromagnetic radiation, properties and evolution of stars, and the Milky Way galaxy. The course is intended for students in the social sciences and the humanities. Every term.

PHYS 204 Classical Physics for Life Sciences 3.1; 3 cr.
Solids and fluids, thermal physics and processes, heat and heat engines, the laws of thermodynamics, gas dynamics, vibrations and wave phenomena, sound, reflection and refraction of light, mirrors and lenses, wave optics and optical instruments. Prerequisite: PHYS101 or PHYS 103 (or equivalent). Annually.

PHYS 204L Classical Physics for Life Sciences Laboratory 1.2; 1 cr.
Error analysis, Bernoulli's Law, surface tension, coefficient of viscosity, thermal expansion, Boyle's law, heat engine, mechanical equivalent of heat, waves on a stretched string, standing waves in air columns, geometrical optics I: reflection and refraction, geometrical optics II: mirrors and lenses, interference and diffraction. Pre/corequisite: PHYS 204. Annually.

PHYS 205 Modern Physics for Life Sciences 3.1; 3 cr.
Part I: Electric field, electric potential Gauss's law, capacitance, electric current and circuits and Ohm's law. Magnetic field, Ampere's law, electromagnetic induction, electromagnetism applied to biological systems. Part II: Introduction to relativity, atoms and atomic structure, nuclei, elementary particles and radioactivity. Prerequisite: PHYS101 or PHYS 103 (or equivalent). Annually.

PHYS 205L Modern Physics for Life Sciences Laboratory 1.2; 1 cr.
Error analysis, capacitance and dielectric constants, basic oscilloscope operations, Wheatstone bridge, RC and RL circuits, measurements of magnetic induction fields, measurement of the charge to mass ratio of electrons, RC and RLC-circuits, Ohm's law, Planck's constant, atomic spectroscopy, transformers. Pre/corequisite: PHYS 205. Annually.

PHYS 206 Applied Physics for Life Sciences 3.1; 3 cr.
This course aims to provide students with the application of physical principles to medicine and healthcare sectors in developing new diagnostic tools, medical techniques, and treatment methods. Physics 206 is the second part of a non-calculus introductory course in physics designed primarily for students in the life sciences. The course stresses on how the laws of physics are correlated and explain some human body functions in particular fluid mechanics of blood and air, hearing and acoustic of the ear, vision optics, electrical signaling. Physics 206 will also shed light on modern medical diagnostic tools that have developed during the past century including X-rays, electric signaling EKG, ultrasound scans and doppler ultrasound, and magnetic resonance imaging. Prerequisite: PHYS101 or PHYS 103 (or equivalent). Students who take PHYS 206 cannot receive credit for PHYS 204 and/or PHYS 205.

PHYS 206L Applied Physics for Life Sciences Laboratory 1.2; 1 cr.
Physics 206L is one credit 3 hour/week laboratory course designed primarily for students in the life sciences and it is premedical course. The experiments deal with fluids, sound waves, electricity and magnetism as well as modern physics. Pre/corequisite: PHYS 206.

PHYS 210 Introductory Physics II 3.1; 3 cr.
Review of classical mechanics, fluid statics, fluid dynamics, temperature, heat and first law of thermodynamics, kinetic theory of gases, heat engines, entropy and second law of thermodynamics, general properties of waves, sound waves and resonances, light and optics, interference, diffraction, and polarization. Pre/corequisite: MATH 201. Every term.

PHYS 210L Introductory Physics Laboratory II 1.2; 1 cr.
Error analysis, Atwood's Machine and motion down an incline, conservation of Mechanical energy, surface tension and viscosity, thermal expansion of solids, mechanical equivalent of heat, standing waves on a stretched string, standing waves in air columns, interference and diffraction, the spectrometer, Michelson interferometer. Pre/corequisite: PHYS 210. Every term.

PHYS 211 Electricity and Magnetism 3.0; 3 cr.
Electrostatics, current, resistance, Ohm's law, Kirchhoff's laws, RC circuits, magnetic field, Ampere's law, Biot-Savart law, Faraday's law, LR circuit, RLC circuits, and a qualitative discussion of Maxwell's equations. Pre/corequisite: MATH 201. Every term.

PHYS 211L Electricity and Magnetism Laboratory 1.2; 1 cr.
Error analysis, capacitance and dielectric constant measurements, electrical circuits and Wheatstone bridge, measurement of the force between two parallel current-carrying conductors, measurement of magnetic induction fields, basic oscilloscope operations, RL, RC, and RLC circuits, measurement of the e/m ratio of electrons, transformers, Ohm's Law and resistivity. Pre/corequisite: PHYS 211. Every term.

PHYS 212 Modern Physics 3.0; 3 cr.
Special theory of relativity, introductory quantum mechanics, atomic physics, nuclear physics, and introduction to elementary particles and cosmology. Pre/corequisite: MATH 201. Students cannot receive credit for both PHYS 212 and CHEM 218. Every term.

PHYS 214 Introduction to Vibrations and Waves 3.0, 3 cr.
This course aims to introduce students to the physical and mathematical properties shared by wave phenomena across scales and states of matter. It begins with the vibrations of a single particle, whether free or forced, with due consideration for resonances. It then moves on to collective vibrations of coupled systems of particles, with particular emphasis on normal modes of vibrations. Proper wave-like behavior will then appear in the continuous limit of the particle description and its properties (including reflection, transmission, refraction, polarization, interference, and diffraction to list a few). In support of the analytic (as opposed to descriptive) approach to the subject, advanced mathematical techniques (to do with ordinary differential equations, linear algebra, and Fourier analysis) will be introduced as and when needed. Annually.

PHYS 216 Mathematical Methods for Physics 3.0; 3 cr.
Vector analysis, tensors, linear operators, Eigenvalue problems, determinants and matrices, Sturm-Liouville problems, special functions, Fourier series and transforms, complex analysis. Prerequisite: MATH 202. Annually.

PHYS 217 Mechanics 3.0; 3 cr.
Kinematics of particles motion, Newtonian formulation of mechanics, integration of Newtonian equations of motion, Lagrangian formulation of mechanics, Hamilton dynamics, central forces, linear oscillations, nonlinear oscillations and chaos, collisions, non-inertial systems, coupled oscillations, and motion of rigid bodies. Prerequisite: MATH 202. Annually.

PHYS 218 Non-linear Dynamics 3.0; 3 cr.
The course explores nonlinearity and chaos in physical phenomena. Applications are drawn from classical and celestial mechanics, fluid mechanics and structural dynamics, nonlinear electronics, lasers, and coupled oscillators. The approach is thoroughly geometrical focusing on the phase space structure of dynamical systems, and progressing through systems of increasing dimension and complexity, from equilibria, their linear stability analysis, and bifurcations, to periodic solutions and their bifurcations, to the emergence and characterization of chaos, and universality within it. We will appeal to both analytical and computational methods, calling on illustrative hands-on experiments when appropriate. The course requires senior standing of physics majors, and is open, with instructor permission, to non-physics majors who have completed MATH 201, MATH 202, and PHYS 216 (or equivalent).

PHYS 220 Electromagnetic Theory 3.0; 3 cr.
Electrostatics: electric potential, Gauss' law, Poisson's and Laplace's equations, boundary conditions, electric currents, Faraday's law, Lenz's law, mutual inductance. Maxwell's equations and propagation of electromagnetic waves. Prerequisite: MATH 202. Annually.

PHYS 221L Junior Physics Laboratory 0.6, 3 cr.
This course is intended to help students acquire basic practical skills that are used in experimental physics. The course introduces students to some of the basic equipment that are used in this discipline. Experiments will cover a range of phenomena, including, electricity and magnetism, mechanics, optics, waves and modern physics. Prerequisite: junior standing. Annually.

PHYS 222 Computational Physics 3.0; 3 cr.
Basics of numerical analysis: Numerical solutions of algebraic and transcendental equations, methods for solving systems of linear and differential equations and scholastic methods. Applications: planetary motion, simple models of stars, nonlinear dynamics and chaos, potentials and fields, waves, random systems, computational fluid dynamics, statistical mechanics (phase transitions, Ising model), molecular dynamics, and quantum mechanics. Prerequisites: CMPS 201 or EECE 230, MATH 201 and MATH 202. Annually.

PHYS 223 Physical Optics 3.0; 3 cr.
Wave theory of light, Maxwell's equations, superposition and polarization, interference, interferometers, diffraction, coherence, lasers, and holography. Annually.

PHYS 225 Introduction to Astronomy and Astrophysics 3.0; 3 cr.
Observation and instruments, photometry and magnitudes, radiation mechanisms, celestial mechanics, stellar spectra and structure, stellar evolution, Milky Way, galaxies, cosmology. Pre/corequisites: MATH 201, MATH 202. Junior Standing. Annually.

PHYS 226 Solid State Physics 3.0; 3 cr.
Electrons in one-dimensional periodic lattice, vibrations in one-dimensional periodic lattice, geometrical description of crystals, free-electron theory in metals, excitons, plasmons, polarons, lattice dynamics, semi-conductors, magnetic ordering, superconductivity, and electron gas in a magnetic field. Prerequisites: PHYS 235 and PHYS 236. Annually.

PHYS 228 Electronics 3.0; 3 cr.
DC linear circuits, capacitors, inductors and transients, periodic waveforms, diodes, power supplies, operational amplifier, logic gates, timers, multiplexers, flip-flops, and counting circuits. Students cannot receive credit for this course unless they pass PHYS 228L. Annually.

PHYS 228L Electronics Laboratory 0.3; 1 cr.
DC measurements, periodic waveforms, power supplies, transients, frequency and period measurements, operational amplifiers, and some digital circuits. Pre/corequisite: PHYS 228. Every term.

PHYS 231 Special Topics 3.0; 3 cr.
May be repeated for credit. Prerequisite: consent of department.

PHYS 232 Special Topics 3.0; 3 cr.
May be repeated for credit. Prerequisite: consent of department.

PHYS 235 Statistical Physics 3.1; 3 cr.
Boltzmann distribution, Gibbs distribution, thermal radiation, heat and work, kinetic theory of gases, entropy and temperature, statistical mechanics of semiconductors, kinetics of chemical reactions, and phase transitions. Prerequisite: senior standing. Annually.

PHYS 236 Quantum Mechanics 3.0; 3 cr.
Fundamental concepts: Bras, Kets, matrix representation of operators, change of basis; quantum dynamics: time evolution of quantum mechanical systems, spin; translational and rotational symmetry: Schrödinger equation in one and three dimensions; spherical symmetric systems: three-dimensional oscillator, hydrogen atom; theory of angular momentum: rotation operator, addition of angular momenta; time-independent perturbation theory, Zeeman effect, Stark effect, spin-orbit coupling, time-dependent perturbation theory, variational methods. Prerequisites: PHYS 212 and PHYS 216. Annually.

PHYS 237 Introduction to Plasma Physics 3.0; 3 cr.
Basic description of plasma: occurrence in nature and laboratory; basic plasma characteristics, single particle motion in uniform, non-uniform and time-varying E and B fields. The fluid description and magnetohydrodynamic equations. Electrostatic, hydrodromagnetic and magnetosonic waves. Diffusion in weakly and fully ionized plasmas. Hydromagnetic equilibrium; classification of instabilities. Kinetic effects using the Vlasov and Fokker-Planck equations and Landau damping. Pre and corequisites: PHYS 217 and PHYS 220. Annually.

PHYS 248 Undergraduate Seminar 1.0; 1 cr.
Prerequisite: senior standing. Annually.

PHYS 249 Elementary Particle Physics 3.0; 3 cr.
The standard model of elementary particles and their interactions represent the core content of the course. Topics to be discussed include, but are not limited to, relativistic kinematics, the Dirac equation, internal and space-time symmetries, the quark model, gauge theories and the basic description of the electromagnetic, weak and strong interactions and their Feynman calculus, spontaneous breaking of symmetries and the Higgs mechanism. Prerequisites: PHYS 236 and/or senior standing. Annually.

PHYS 257L Advanced Laboratory 0.6; 3 cr.
Students perform a selection of six to eight experiments from the following list: transient and steady states of SH-oscillator, coupled oscillators, Frank–Hertz experiment, Planck constant, Currie temperature, magnetic susceptibility, Millikan's drop oil experiment, Hall effect, Faraday rotation, Johnson noise, atomic spectroscopy, Zeeman effect, Paramagnetic resonance, pulsed nuclear magnetic resonance, X-ray diffraction, Brownian motion and optical pumping. Prerequisite: PHYS 221L. Annually.

PHYS 299A Physics in Applications 1.0; 1 cr.
It is the first course in a series of two courses (PHYS 299A and PHYS 299B), taken in consecutive terms. This is a capstone course required for Physics Majors and taken in two consecutive terms. It includes lectures grouped in modules, a seminar, and a project. The objective is to integrate students' knowledge of the basic theoretical courses by exploring applications of Electromagnetic Theory, Quantum Mechanics, and Statistical Physics. The course material may reflect research interests of faculty members and is coordinated with experiments constituting the Senior Lab course and with the Computational Physics projects to emphasize the dynamics between theory, experiments, and computational work. The seminar is based on faculty presentations of original seminal papers pertaining to the course material, and project presentations by the students. The project could range from a computational exploration of a problem to designing a new experiment for a Junior or Senior Lab, or to designing a demonstration for the basic physics courses. Every term.

PHYS 299B Physics in Applications 2.0; 2 cr.
It is a continuation of PHYS 299A. This is a capstone course required for Physics Majors and taken in two consecutive terms. It includes lectures grouped in modules, a seminar, and a project. The objective is to integrate students' knowledge of the basic theoretical courses by exploring applications of Electromagnetic Theory, Quantum Mechanics, and Statistical Physics. The course material may reflect research interests of faculty members and is coordinated with experiments constituting the Senior Lab course and with the Computational Physics projects to emphasize the dynamics between theory, experiments, and computational work. The seminar is based on faculty presentations of original seminal papers pertaining to the course material, and project presentations by the students. The project could range from a computational exploration of a problem to designing a new experiment for a Junior or Senior Lab, or to designing a demonstration for the basic Physics courses. Prerequisite: PHYS 299A. Every term.

39 Credits in Physics

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (Min. 6)	Understanding the World (39), Quantitative Reasoning (6)	Community-Engaged Learning (3)
Lecture Courses (9+12+6 +33+3+ 12+9+3)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Two required courses	Nine required courses: PHYS 212, 214, 216, 217, 220, 222, 235, 236, PHYS 299A, PHYS 299B (27) Two elective physics from PHYS 218, 223, 225, 226, (228 + 228L),231, 232, 237, 249, or other selected topics (6) One Understanding the World from outside the major (3) Four free electives courses (12) from inside or outside the department Three required: MATH 201, 202, and CMPS 201, or EECE 230 (9)	Requirement course (3)
Laboratory (6)				Required Physics Labs: PHYS 221L(3), 257L(3) (6)	
Research Project				The following courses may include a research project: PHYS 222, 226, 231, 232, 235, 236, 249	

Department of Political Studies and Public Administration (PSPA)

Chairperson	Haddad, Tania (Interim)
Professor	Khashan, Hilal
Associate Professors	Frangie, Samer; Geukjian, Ohannes; Haddad, Tania; Khodr, Hiba; Kosmatopoulos, Nikolas; Makdisi, Karim; Tell, Tariq
Assistant Professors	Jallad, Zaina; Mouawad, Jamil (Director of Public Policy and International Affairs)
Distinguished Practitioner of Public Policy	Nahas, Charbel
Senior Lecturer	Bayrakdarian, Nora
Lecturers	Awada, Ghada; El Debek, Amer; Mohanna, Zeina; Shaar, Rima; Smaira, Dima
Instructors	Akoum, Walid; Choulhadjian, Vera; Hankir, Samer; Maalouf, Rabih C

BA in Political Studies

BA in Public Administration

The Department of Political Studies and Public Administration (PSPA) offers two major programs: one leading to the degree of bachelor of arts in political studies and one leading to the degree of bachelor of arts in public administration. Students wishing to transfer to PSPA must secure and maintain the approval of the department and must satisfy the conditions detailed below. Acceptance to the department is subject to the availability of places.

Mission Statements

The mission of the BA program in political studies at AUB is to provide students with an understanding of the political ideas, institutions and processes that inform, shape, and regulate domestic and international politics. The core curriculum is designed to engage students in the critical analysis and assessment of the political world, and help them acquire the intellectual, practical and moral skills that are necessary for their development as future academics, civil servants, and responsible citizens. The program is committed to serving the university's liberal arts model of higher education, and provides students with the intellectual means to understand and reflect on major political issues that define their individual and communal life.

The mission of the BA program in public administration is to educate students, and help them develop knowledge, skills and abilities in the discipline of public administration. This includes teaching students to become innovative leaders by developing their managerial and analytic skills, thereby preparing them for professional success. The program is designed to provide students with in-depth knowledge and training geared towards the building of a generalist, academic, professional, and ethical background, and to enhance students' decision-making, analytical and interpersonal skills. We aim to increase our students' understanding of the political, constitutional, legal, economic, social, cultural, and organizational environments within which they will work.

Graduation Requirements

University Requirements

Language Requirements: 6 credits of English and 3 credits of Arabic.

General Education requirements: Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits). At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Major Courses: 39 credits of PSPA courses, both for PS and PA majors.

Students majoring in political studies are required to complete 39 credits in the department, which must include PSPA 201, PSPA 202, PSPA 203, PSPA 210, PSPA 211, PSPA 213, and either PSPA 253 or PSPA 256. Six additional political studies courses, including one senior seminar, are required. These six courses can be selected from PSPA 256-214, PSPA 286, PSPA 288, PSPA 293-290, and PSPA 299. Students are expected to choose, after consultation with their adviser, four courses that count as free electives. Students majoring in public administration are required to complete 39 credits in the department, which must include PSPA 201, PSPA 202, PSPA 203, PSPA 212, PSPA 273, PSPA 276, and PSPA 277. Six additional courses are required. Four courses should be taken in one of the sub-fields (public management or public policy) and the remaining two courses in the other sub-field. The public management courses are PSPA 222, PSPA 257, PSPA 258, PSPA 259, PSPA 272, PSPA 275, PSPA 278, PSPA 287, PSPA 289, PSPA 297 and PSPA 299. The public policy courses are PSPA 260, PSPA 261, PSPA 262, PSPA 263, PSPA 287, PSPA 289, PSPA 298, and PSPA 299. One of these courses should be a senior seminar (PSPA 297 or PSPA 298). PA majors are also required to take the following courses outside the department which are one economics course from the general elective list, one course related to information technology (CMPS 206 or CMPS 209), one course related to statistical analysis (STAT 201, STAT 210, EDUC 227 or PSYC 213) and either SOAN 201 or PSYC 201. Students are expected to choose, after consultation with their adviser, three courses that count as free electives. All PSPA majors are recommended to complete PSPA 201, PSPA 202, and PSPA 203 by the end of their second term in the program. All PSPA majors must take ENGL 203 and ENGL 204 by the end of their third term in the program. PSPA majors whose PSPA average falls below 2.3 will be dropped from the program.

Transfer of Major

Transfer of Major within the Faculty of Arts and Sciences: Transfers to the PSPA major require a grade of C+ in PSPA 201 and PSPA 202 plus a minimum combined grade average of 2.3 in ENGL 203 and ENGL 204.

Transfer from one Faculty to Another within the University: Students who wish to transfer from one faculty to another must complete the application for transfer form available on AUBsis. Students must apply within the deadlines specified in the university calendar.

Minors in PSPA

Minors for PSPA Majors

Political Studies majors choosing to minor in Public Administration are required to take a minimum of 15 credits. The requirements are PSPA 212 plus four upper-level courses from the following list: PSPA 222, PSPA 257, PSPA 258, PSPA 259, PSPA 272, PSPA 273, PSPA 275, PSPA 277, PSPA 278, PSPA 289, PSPA 297, PSPA 299. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Political Studies majors choosing to minor in Public Policy are required to take a minimum of 15 credits. The requirements are PSPA 260 and PSPA 276 plus three upper-level courses from the following list: PSPA 223, PSPA 225, PSPA 238, PSPA 250, PSPA 251, PSPA 252, PSPA 259, PSPA 261, PSPA 262, PSPA 263, PSPA 277, PSPA 278, PSPA 297 or PSPA 298. No more than 9 credits may be used to satisfy a requirement for another major or minor.

PSPA students choosing to minor in Civil Society, Citizenship and the Nonprofit sector are required to take a minimum of 15 credits. The requirements PSPA 222 and PSPA 272 and three electives from the following list of courses: PSPA 202, PSPA 203, PSPA 233, PSPA 235, PSPA 254, PSPA 257, PSPA 260, PSPA 263, PSPA 289G, PSPA 299, ECON 232, ECON 237, MCOM 217, MCOM 252, SOAN 225, SOAN 226, SOAN 240, and SOAN 245. No more than 12 credits can be taken from the same department. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Political Studies majors choosing to minor in International Law are required to take a minimum of 15 credits. The requirements are PSPA 225, and four upper-level courses from the following list: PSPA 223, PSPA 226, PSPA 228, PSPA 232, PSPA 233, PSPA 235, PSPA 239, PSPA 288 (if related to the minor's emphasis and approved by the PSPA Department), PSPA 293B, 293C, 293F, PSPA 299 (if approved by the PSPA Department) and SOAN 245. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Political Studies majors choosing to minor in International Law are required to take a minimum of 15 credits. The requirements are PSPA 225, and four upper-level courses from the following list: PSPA 223, PSPA 226, PSPA 228, PSPA 232, PSPA 233, PSPA 235, PSPA 239, PSPA 288 (if related to the minor's emphasis and approved by the PSPA Department), PSPA 293B, 293C, 293F, PSPA 299 (if approved by the PSPA Department) and SOAN 245. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Public Administration majors choosing to minor in Political Studies are required to take a minimum of 15 credits. The requirements are one of the following: PSPA 210, PSPA 211 or PSPA 213; and any four upper-level courses from the following list: PSPA 214-256, PSPA 286, PSPA 288, PSPA 290-293, and PSPA 299. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Minors for Non-PSPA Majors

Non-PSPA majors choosing to minor in Political Studies are required to take a minimum of 15 credits. The requirements are PSPA 201, one of the following: PSPA 210, PSPA 211 or PSPA 213, and any three upper-level courses from the following list: PSPA 214-256, PSPA 286, PSPA 288, PSPA 290-293, and PSPA 299. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Non-PSPA majors choosing to minor in Public Administration are required to take a minimum of 15 credits. The requirements are PSPA 202 and PSPA 212 plus three upper-level courses from the following list: PSPA 222, PSPA 257, PSPA 258, PSPA 259, PSPA 272, PSPA 273, PSPA 275, PSPA 277, PSPA 278, PSPA 297, PSPA 289, PSPA 298, PSPA 299. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Non-PSPA majors choosing to minor in Public Policy are required to take a minimum of 15 credits. The requirements are PSPA 202, PSPA 260 and PSPA 276 plus two upper-level courses from the following list: PSPA 223, PSPA 225, PSPA 238, PSPA 250, PSPA 251, PSPA 252, PSPA 259, PSPA 261, PSPA 262, PSPA 263, PSPA 277, PSPA 278, PSPA 297 or PSPA 298. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Non-PS majors choosing to minor in International Law are required to take a minimum of 15 credits. The requirements are: PSPA 213 and PSPA 225, plus three upper-level courses from the following list: PSPA 223, PSPA 226, PSPA 228, PSPA 232, PSPA 233, PSPA 235, PSPA 239, PSPA 288 (if related to the minor's emphasis and approved by the PSPA Department), PSPA 293B, 293C, 293F, PSPA 299 (if approved by the PSPA Department) and SOAN 245. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Non- PSPA students choosing to minor in Civil Society, Citizenship and the Nonprofit sector are required to take a minimum of 15 credits. The requirements are: PSPA 222 and PSPA 272 and three elective courses from the following list of courses: PSPA 202, PSPA 203, PSPA 233, PSPA 235, PSPA 254, PSPA 257, PSPA 260, PSPA 263, PSPA 289G, PSPA 299, ECON 232, ECON 237, MCOM 217, MCOM 252, SOAN 225, SOAN 226, SOAN 240, and SOAN 245. No more than 12 credits can be taken from the same department. No more than 9 credits may be used to satisfy a requirement for another major or minor.

Course Descriptions

PSPA 101 Issues in Contemporary Politics 3.0; 3 cr.
A course that examines the global context of politics, focusing on the changing world order in the twentieth century. Special attention is given to themes like democratization, civil society, ethnic conflict, human rights, and globalization. Every term.

PSPA 201 Introduction to Political Science 3.0; 3 cr.
An introduction to the study of politics with emphasis on the basic concepts, ideas, and issues relating to the process of government in the modern state. Every term.

PSPA 202 Introduction to Public Administration 3.0; 3 cr.
A course on the nature of public administration. Basic concepts, processes, and approaches in the field of public administration are introduced so that the students develop an appreciation for the role of public administration in modern society. Every term.

PSPA 203 Research Methods 3.0; 3 cr.
A course that focuses on the problems involved in asking and answering questions about political science and public administration. This course presents the various analytical frameworks and methodological tools used for this purpose with emphasis on empirical approach, data collection, and analysis. Students cannot receive credit for both SOAN 210 and PSPA 203. Every term.

PSPA 210 Introduction to Political Thought 3.0; 3 cr.
An introduction to the main Western and Islamic traditions in political philosophy and political theory.

PSPA 211 Introduction to Comparative Politics 3.0; 3 cr.
A survey of concepts and issues in comparative politics. This course acquaints students with basic theoretical frameworks for the study and analysis of political phenomena, and establishes criteria for comparing political systems. This course also closely examines the application of these concepts, frameworks, and criteria in selected countries. Every term.

PSPA 212 Contemporary Trends in Public Administration and Management 3.0; 3 cr.
A course that deals with the contemporary transformation of the public sector and its relationship with government and society. This course evaluates managerialism in the public sector, privatization, and entrepreneurial government. Every term.

PSPA 213 Introduction to International Politics 3.0; 3 cr.
A survey of the basic forces and factors determining relations among states, with special emphasis on the international system, foreign policy, national power, the restraints on determinants of state action, contemporary problems and major issues faced by states, and the patterns of interaction that prevail among states. Every term.

PSPA 214 Early and Mediaeval Islamic Thought 3.0; 3 cr.
The course is an introduction to early and classical Islamic political thought. It focuses on the history, origins, developments and objectives of Islamic political history, theology, jurisprudence and politics as they relate to the state, society, and relations with non-Muslims. The course analyzes the essential concepts and events that make the political core doctrines of Islam: a political system, a political theology and ideology, and a theory of international relations. Comparisons and contrasts between different Islamic schools are to be explored. Occasionally.

PSPA 215 Modern Islamic Thought 3.0; 3 cr.
The course is a survey that focuses on major political and ideological issues in the modern world of Islam and deals analytically with the major doctrines, movements, and trends that have been developed during the 19th and 20th centuries. The course starts with the discussion of the ideological and political doctrines of Islamic reformers, then moves to discuss the rise of Islamic movements and their ideologies. Issues like Islamic government, state, religion, revolution, nationalism, and relations with the West are to be discussed. Annually.

PSPA 216 Western Political Thought from Antiquity to the Renaissance 3.0; 3 cr.
A survey of the main Western traditions, philosophies, and themes in political thought from Greek Antiquity to the Renaissance. The course will combine an in-depth analysis of the main philosophical concepts of the past that are still relevant to contemporary political thought and politics, with a historical analysis of the intellectual, social, and political context in which they emerged and for which they were constructed. Special focus will be given to the Greek polis and the emergence of a discourse on democracy, the relationship between politics and ethics, the search for good government and the just society, and the shift to early Realism in the context of the emergence of the modern state in Europe. Occasionally.

PSPA 217 Modern and Postmodern Western Political Thought 3.0; 3 cr.
A survey of the main Western traditions, philosophies, and themes in political thought from early European Modernity and the Enlightenment to the contemporary era, including Postmodern philosophies. The course will combine an in-depth analysis of the modern and postmodern paradigms in political philosophy, with a historical analysis of the intellectual, social and political context that led to the critique of the modern nation-state, nationalism, and democracy, and the search for new normative orders. Annually.

PSPA 218 Social Theories 3.0; 3 cr.
A survey of the main social theories that have contributed to an empirical understanding of the political at different levels of analysis and from different conceptual frameworks. The course will emphasize an interdisciplinary approach, through a comparison of theories produced in different disciplines (political science, sociology, anthropology, political psychology, economics) that focuses on different objects of study (the state, the community, social classes, the individual). Annually.

PSPA 219 Arab Political Thought and Ideologies 3.0; 3 cr.
The aim of the course is to explore various intellectual and political debates in the modern Arab world. The course will provide an overview of the development of modern Arab political thought and will present some of the main political, intellectual, and academic debates in this domain. Topics covered in this course include Arab nationalism, Marxism and Liberalism, modernity and tradition, secularism and Islam, Orientalism and the West, and other topics. Annually.

PSPA 220 Globalization and Culture 3.0; 3 cr.
This course offers a critical exploration of the cultural dynamics of globalization and the politics of the globalization of culture. It also addresses the spread of (and reaction to) American popular culture abroad and the impact of globalization on American culture and identity. Occasionally.

PSPA 221 Theories and History of the State 3.0; 3 cr.
The aim of the course is to explore “the state” as a political construct and to provide a comparative survey of experiences of state-building in the Middle East (including Lebanon). Topics covered include the history of state formation, state-society relations, authoritarianism and democratization, the impact of globalization on the state, and related issues. Occasionally.

PSPA 222 Democracy, Civic Engagement and Leadership 3.0; 3 cr.
The course will introduce students to the principles and processes of civic engagement and leadership within democratic and democratizing systems of governance, and will help them understand the theoretical and practical issues related to the practice of participatory democracy from a comparative perspective. The discussion of the main features of the democratic system will be complemented with an extensive review of specific cases that are relevant to understanding the problems that face civic engagement and leadership in different socio-political and cultural contexts. Annually.

PSPA 223 Constitutional Law 3.0; 3 cr.
A course that examines the constitutions and the development of constitutional mechanisms and practices in selected countries, with a focus on the Lebanese constitutional system. Constitutional mechanisms in general and institutional variables are discussed as well as their impact on public policy, democracy, and political stability. Every term.

PSPA 225 Public International Law I 3.0; 3 cr.
A course introducing the basics of public international law, including its origins, purpose, sources, subjects, and response to international wrongful acts. It explores case studies to illustrate key points. The aim of this course is to build students’ understanding of the modern international legal order and its most important principles, and to contextualize its relationship with international politics. Annually.

PSPA 226 Public International Law II 3.0; 3 cr.
A course that, building upon PSPA 225's introduction, deals in more depth with some of the most important fields of public international law such as diplomatic relations, the law of the sea, the regulation of the use of force, international humanitarian law, human rights, international justice or the development of international criminal law. This course makes extensive use of recent case studies and entails an important research component as it deals with some of the most significant developments and debates in contemporary international law. Prerequisite: PSPA 225. Occasionally.

PSPA 228 International Security 3.0; 3 cr.
A course analyzing major issues in international security, including arms control, disarmament, terrorism and environmental degradation in both theory and practice. It covers both traditional and non-traditional security perspectives. Occasionally.

PSPA 229 Water Politics and Policy 3.0; 3 cr.
Water is the key to life, and yet it is a resource that is exploited unevenly across and within states. This course examines key issues of water conflict, cooperation, security and development in both international and domestic spheres. Occasionally.

PSPA 231 Palestinian and Israeli Politics 3.0; 3 cr.
A survey of Palestinian and Israeli politics—political systems, institutions, parties, and processes of governance—in the historical context of the partition of Palestine, the proclamation of the state of Israel, and the establishment of the Palestinian Authority. The course will cover contemporary issues pertaining to the functioning of both systems, to their relationship at the political, economic, (para)military, and territorial levels, as well as the impact of local, regional, and international negotiations on the future political and legal development of the region. Occasionally.

PSPA 232 Conflict and Conflict Regulation 3.0; 3 cr.
A course that contextualizes and explores domestic, regional, and international conflicts as well as the mechanisms for their management or resolution. It focuses on such issues as the linkages between internal and external sources of conflict, the contested nature of conflict resolution concepts, peacemaking, and peace-building. Every term.

PSPA 233 International and Regional Organizations 3.0; 3 cr.
This course explores the theories, institutional structures, political processes, role and impact of international and regional organizations within the larger context of world politics. Every term.

PSPA 234 Transnational Politics 3.0; 3 cr.
This course explores issues of global governance beyond the traditional intergovernmental framework. It focuses on the increasingly visible role of non-state actors (social movements, NGOs, global media, transnational corporations) and transnational politics in shaping contemporary global politics. The course investigates whether the process of contemporary globalization has given rise to global civil society. Annually.

PSPA 235 Human Rights and International Politics 3.0; 3 cr.
A course that examines the development and relevance of institutions and instruments concerned with human rights, and then considers problems of human rights issues in selected countries and their impact on regional and global actors. Every term.

PSPA 236 The Arab-Israeli Conflict 3.0; 3 cr.
A survey of the conflict over Palestine since the 19th century up to the contemporary period. This course focuses on the origins and evolution of the Arab-Israeli conflict both in its regional and international dimensions, covering topics such as the colonial roots, the formation of the state of Israel, the PLO, the 1967 war up to the second Intifada. Every term.

PSPA 237 The Modern Middle East in International Politics 3.0; 3 cr.
This course examines the place of the "Middle Eastern" system of states in the international system and in relation to US foreign policy towards the region. It covers the legacies of Western colonialism, Arab nationalism, the Cold War and the continuing intervention of external powers (especially the US), the geopolitics of oil, and the rising influence of Islamist movements and non-state actors. Annually.

PSPA 238 International Political Economy: From Imperialism to Globalization 3.0; 3 cr.
This course examines the development of the modern world economic system through an analysis of its main characteristics and an overview of the theories relevant to its understanding. Issues covered in this course include imperialism, colonialism, the international market, globalization, the influences of the world economic system on states and the North-South divide. Annually.

PSPA 239 International Environmental Politics 3.0; 3 cr.
This course serves as an introduction to the field of international environmental politics, exploring the relationship between global political forces and environmental change. A central goal is to critically analyze how environmental problems are framed and solutions found. The course examines the rise of environmentalism in both the North and the South; the emergence of liberal and radical environmental discourse; and the formulation, negotiation and implementation of international environmental regimes and sustainable development policies. Relevant case studies include the international trade in hazardous waste and endangered species; the politics of whaling, ecotourism, GMOs, and climate change; the management of biodiversity, fisheries, ocean and forest regimes; and the relationship between environment and security. Annually.

PSPA 250 Politics of Emerging Countries 3.0; 3 cr.
A survey of politics in key emerging economies such as the BRIC states (Brazil, Russia, India, and China) and others including South Africa and Mexico. The course examines the role of these emerging economies in world politics and their policy-making structures. Annually.

PSPA 251 Politics and Government: United States of America 3.0; 3 cr.
A survey of the main features of the American political system, including the foreign policy making process. Annually.

PSPA 252 European Politics 3.0; 3 cr.
A course that examines contemporary European politics with an emphasis on the European Union, its governance structure, and external relations (particularly towards the Middle East). Occasionally.

PSPA 253 Politics and Government: Middle East 3.0; 3 cr.
A survey of political institutions and processes in the Middle East, with an emphasis on social and political development, the policy-making process and international affairs. Annually.

PSPA 254 Political Development and Social Change 3.0; 3 cr.
A survey of major issues and controversies in political development, theories of social change, and their relevance to developing countries. Topics covered by this course include modernization, state-building, democratization, revolutions, conflicts, authoritarianism, social movements and civil society. Occasionally.

PSPA 255 Islamic Political Institutions 3.0; 3 cr.
A survey that introduces the manner in which Islamic Shari'a was introduced into the political life of the nation-states in the Middle East. It focuses on the causes for its inclusion or exclusion in the constitutions, political institutions and processes, and courts in the Middle East, with an emphasis on legislative process, personal status code, criminal code, as well as social and political development, and their impact on policy-making processes and international relations. Occasionally.

PSPA 256 Politics in Lebanon 3.0; 3 cr.
An overview of Lebanese politics in Mount Lebanon from the mid-nineteenth century to the formation of the Republic of Lebanon. This course deals with the origins, evolution, and workings of the confessional system with emphasis on the period after independence, from the civil war to the present. In addition, it focuses on the main political and social movements that marked Lebanese politics. Every term.

PSPA 257 Regional and Local Administration 3.0; 3 cr.
A course that deals with the legal aspects, organization, and theories of regional and local administration. This course examines issues of centralization-decentralization, central-regional-local government relations, and balanced development at the national level. Annually.

PSPA 258 Comparative Public Administration 3.0; 3 cr.
An introduction to the governmental, administrative, and political systems of both developed and underdeveloped countries with a focus on political systems and their manifestation in administrative systems. The objectives of this course center upon comparing and contrasting issues and concerns central to public administration systems within a selected set of countries worldwide. To attain these objectives the course will explore an array of interrelated questions and issues such as governance in contemporary societies, including administrative reforms, privatization, 'empowerment', the impact of globalization on state administrative structures and policies, devolution, and other concerns relevant to public sector administrators. Annually.

PSPA 259 Public Administration in Lebanon 3.0; 3 cr.
A course that examines the legal aspects, environment, scope, structure, and problems of public administration in Lebanon, with special emphasis on administrative reforms and their institutional products. Annually.

PSPA 260 Introduction to Policy Analysis 3.0; 3 cr.
This is an introductory course to policy analysis. Students should be familiar with the basic concepts and terminology of public policy and public administration. This course provides students with both essential and more advanced methods used in public policy analysis. It covers important components of the process of policy analysis such as identifying data sources and weighing the utility of data; establishing criteria for analyzing policies; assessing policy alternatives; choosing among policies; monitoring policy implementation; and evaluating policies. Prerequisite: PSPA 276. Annually.

PSPA 261 Applied Research Methods in Public Policy 3.0; 3 cr.
This course covers the fundamentals of research design in the social sciences in general. It introduces students to the several quantitative methods utilized in the field of public policy in addition to the use of computer resources in policy analysis. Students are assumed to have prior basic knowledge of the scientific methodologies. Prerequisite: PSPA 276. Annually.

PSPA 262 Political and Agency Management Aspects of Public Policy 3.0; 3 cr.
The purpose of this course is to introduce students to the different organizational and political factors that are involved in the policy-making process. This course is interdisciplinary in nature. It draws upon different theoretical frameworks and empirical scholarly works from several disciplines, and includes case studies. The course focuses on organizational, communicative, and controlling techniques and relevant core competencies for the analysis and solution of problems. Prerequisite: PSPA 276. Annually.

PSPA 263 Public Policy and the Legal Framework 3.0; 3 cr.
This course introduces students to the legal framework of policy formulation and policy implementation. The students will become familiar with legal materials related to the different aspects of the public policy-making process. In addition, the course focuses on the relationships among the lawmaking agencies on the one hand and their relation to the policy-making entities. Specific case studies are included to explore these relationships. Prerequisite: PSPA 276. Annually.

PSPA 264 Public Policy and Activism 3.0; 3 cr.
This course focuses on the role of activists in bringing about policy change and the impact of the different types of activism on public policy. This course provides a realistic brief introduction to how public policy is made. It examines how people (voters, activists, elites, lobbyists, politicians, bureaucrats, and judges), organizations (interest groups, firms, unions, foundations, think tanks, political parties, and the media) and political institutions (Congress, the presidency, the bureaucracy, and the judiciary) interact to create and implement public policy. It further explores how one specific group made out of activists whether employed outside or inside the public sector, can shape policy agendas and influence decisions. Students will not only gain exposure to the theory and literature on policy formulation and the actors involved but also on the politics of policymaking. It covers policy activism and policy advocacy initiatives at local, regional, national, and international scales. It analyzes the relationship between selected social/political movements, advocacy groups and different forms of activism, that are considered legitimate actors, and the policy process and outcome.

PSPA 270 State Institutions and Civic Activism: Organization and Mobilization 3.0; 3 cr.
This course is focused on examining the nexus of relationships and trajectories of influence between collective action groups and state institutions. The course analyzes various forms of collective action and the role of state institutions in shaping different modes of mobilization. The course focuses on enabling students to think critically about strategies and approaches to social movements and political protest by incorporating an understanding of state structures and power dynamics. The course uses experiential learning methods and interdisciplinary theories to help students reflect on real-life case studies inspired from the context of the Middle East and North Africa region.

PSPA 272 The Non-Profit Sector: Formation, Leadership and Governance 3.0; 3 cr.
This course focuses on the economic, social, and legal foundations of the nonprofit sector. The ways in which nonprofit organizations relate to the public and private sectors and the diversity and scope of the nonprofit sector are examined with primary focus on the functions performed by nonprofit organizations and on various patterns of community actions taken in different societies. Annually.

PSPA 273 Human Resources and Personnel Administration 3.0; 3 cr.
A course that examines theories, practice, and problems relating to human resources and personnel administration. This course focuses on key aspects of human resources, planning, and their implications on public policy. Annually.

PSPA 274 Public Administration and Non-State Actors 3.0; 3 cr.
This course explores the various ways in which non-state actors engage with the state. It focuses on the internal dynamics of local relationships between the government and non state actors and offers insights into the interactions between them. It will review the opportunities and constraints of different types of non-state actors (e.g. NGOs, trade unions, employer groups, multinational corporations, thinks tanks; regulatory bodies; rating agencies) within different levels of governance and organizations.

PSPA 275 Organization and Management 3.0; 3 cr.
A survey of the concepts, principles, and techniques of organization and management with special emphasis on questions of applicability. In this course students will develop attitudes and acquire skills that should enable them to administer organizations effectively and efficiently. Students cannot receive credit for both MNGT 215 and PSPA 275. Annually.

PSPA 276 Public Policy 3.0; 3 cr.
A course that analyzes the nature, scope, and performance of public policy. This course examines the different approaches and models of public policy as well as the actors, instruments, and problems involved; the course draws on specific case studies. Annually.

PSPA 277 Public Budgeting 3.0; 3 cr.
A survey of the principles and problems of financial organization and management in the public service with emphasis on fiscal planning, formulation and execution of the budget, financial accountability, control, and other aspects related to the role of the budget in development. Annually.

PSPA 278 Administrative Ethics and Controls 3.0; 3 cr.
This course addresses the moral challenges facing leaders in the public sector. It analyzes the formal and informal means aiming at promoting responsiveness and responsibility in Public Administration. It examines the values and virtues important to sustain ethical leadership, as well as strategies to build strong institutional cultures and support ethical practices in institutions. Students will learn how to identify moral issues in public life and public management. Occasionally.

PSPA 286 Tutorial in Political Studies 3.0; 3 cr. (each)
This course is designed to allow Political Studies students to pursue a course of directed study with PSPA faculty members. It may consist of independent research, original creative compositions, or directed reading, and includes the presentation of a report or thesis. Students who are beginning their senior year may petition the department for course approval. Occasionally.

PSPA 287 Tutorial in Public Administration 3.0; 3 cr. (each)
This course is designed to allow PA students to pursue a course of directed study with PSPA faculty members. It may consist of independent research, original creative compositions, or directed reading, and includes the presentation of a report or thesis. Students who are beginning their senior year may petition the department for course approval. Occasionally.

PSPA 288 Special Topics in Political Studies 3.0; 3 cr. (each)
May be repeated for credit. Special Topics courses do not count as a Senior Seminar. Every term.

PSPA 289 Special Topics in Public Administration 3.0; 3 cr. (each)
May be repeated for credit. Special Topics courses do not count as a Senior Seminar. Every term.

PSPA 290 Senior Seminar in Social and Political Thought 3.0; 3 cr. (each)
May be repeated for credit. Every term.

PSPA 291 Senior Seminar in Middle Eastern Politics 3.0; 3 cr. (each)
May be repeated for credit. Every term.

PSPA 292 Senior Seminar in Comparative Politics 3.0; 3 cr. (each)
May be repeated for credit. Every term.

PSPA 293 Senior Seminar in International Politics 3.0; 3 cr. (each)
May be repeated for credit. Every term.

PSPA 297 Senior Seminar in Organization Theory 3.0; 3 cr.
This senior seminar provides an examination of the development, theoretical structure, major concerns, areas of emphasis and debates in the field of organization theory, from its origins to the present. It takes an interdisciplinary approach and covers the body of empirical findings relevant to organization and management theory, practices and prescriptions. It puts emphasis on those ongoing findings and elements of theory that impact the contemporary study, research, and philosophy in the field of public administration. Annually.

PSPA 298 Senior Seminar in Public Policy and Administration 3.0; 3 cr.
This course focuses on particular public policy issues. It explores the major debates, both theoretical and applied that frame contemporary discussions about public policy. The seminar addresses several topics such as Human Rights policy, Poverty policy, Environmental policy, and Political advocacy. Prerequisite: PSPA 276. Annually.

PSPA 299 Internship Program 3.0; 3 cr.
A course that explores politics and public administration through a variety of work experiences, both governmental and nongovernmental. Students are expected to perform work for academic credit under the guidance of a full-time PSPA faculty member. As part of their course requirements, students will regularly meet with the faculty member sponsoring the course and submit written reports based on their experiences during the internship. Strongly motivated junior and senior students with a highly relevant internship may petition the department for internship approval. Students must enroll in the internship program the term they complete the internship. Annually.

Major in Political Studies: 39 Credits in Political Studies

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (39+6)	Understanding the World, Quantitative Reasoning (9:3/6+3/6)	Community-Engaged Learning (3)
Lecture Courses (9+12+6 +36+12+9)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Two approved Societies and Individuals courses Seven required PSPA courses: PSPA 201(3), 202(3), 203(3), 210(3), 211(3), 213(3) and either 253(3) or 256(3) (21 credits) Five required PSPA courses: PSPA 214(3), 215(3), 216(3), 217(3), 218(3), 219(3), 220(3), 221(3), 222(3), 223(3), 225(3), 226(3), 228(3), 229(3), 231(3), 232(3), 233(3), 234(3), 235(3), 236(3), 237(3), 238(3), 239(3), 250(3), 251(3), 252(3) 253(3), 254(3), 255(3), 256(3), 286(3), 288(3), 299(3) 288(3) 15 credits	One approved quantitative reasoning general education courses (3 credits) Two approved understating the world general education courses (6 credits)	Requirement course (3)
Senior Seminar (3)			One approved PS Senior Seminar: PSPA 290(3), 291(3), 292(3), or 293(3) (3 credits)		
Free Electives	Four approved courses that are numbered 200 and above (12 credits)				

Major in Public Administration: 39 Credits in Public Administration

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (39+6)	Understanding the World, Quantitative Reasoning (9:3/6+3/6)	Courses outside the major (3)	Community-Engaged Learning (3)
Lecture Courses (9+12+6 +39+9+ 3+3)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	One required economics course from the approved General Education list (3), and either SOAN 201(3) or PSYC 202(3) (6 credits) Seven required PSPA courses: PSPA 201(3), 202(3), 203(3), 212(3), 273(3), 276(3) and 277(3) (21 credits). Five required PSPA courses in either: Public Management: Three courses from PSPA 222(3), 257(3), 258(3), 259(3), 272(3), 275(3), 278(3); and two courses from PSPA 260(3), 261(3), 262(3), 263(3), 287 (3), 289 (3) (15 credits); or Public Policy: Three courses from PSPA 260(3), 261(3), 262(3), 263(3) and two courses from PSPA 222(3), 257(3), 258(3), 259(3), 272(3), 275(3), 278(3), 287(3), 289(3) (15 credits).	Two approved Understanding the World General Education courses (6 credits) One course related to information technology: CMPS 206(3) or CMPS 209(3) (3 credits).	One course related to statistical analysis: STAT 201(3), STAT 210(3), EDUC 227(3), or PSYC 213(3) (3 credits).	Required course (3).

Senior Seminar (3)			One approved PA Senior Seminar: PSPA 297(3) or 298(3) (3 credits).			
Free Electives	Four approved courses that are numbered 200 and above (12 credits)					

Department of Psychology

Chairperson	Dietrich, Arne
Professor Emeritus	Kazarian, Shahe
Adjunct Professor	Harb, Charles
Professor	Dietrich, Arne
Associate Professor	Bosqui, Tania
Assistant Professors	Agopian, Sarine; Ayoub, Mona; Badaan, Vivienne; Basma, Badriah; Saade, Sabine
Assistant Professor of Clinical Specialty	Ismail, Ghina
Lecturers	Awaida, May; Fisher, Jennifer; Oueidat, Hala
Instructors	Barhouch, Angela; Bassil, Margaret; EL Majzoub, Hana; Ghanem, Lama; Nasr, Jane; Salem, Samah

The Department of Psychology offers programs leading to a BA degree in psychology and to an MA degree in psychology.

BA in Psychology

Mission Statement

The discipline of psychology is dedicated to increasing the scientific understanding of behavior and mental processes at the intrapersonal, interpersonal and group level, and to the application of that understanding to enhance the functioning of individuals, groups, and society. In line with this mission, the undergraduate program in psychology has a threefold mission: to advance and transmit knowledge related to the nature of psychological processes and functioning, to provide a strong foundation in the basic knowledge and skills necessary for research in psychology, and to sensitize students to the applications of psychology in the wider community. This mission embodies the main elements of AUB's mission, which are to foster freedom of thought, respect for diversity, critical thinking, personal integrity, and civic engagement.

Requirements for a BA Degree in Psychology

Admission to the psychology program requires a grade of B or more in PSYC 101 or PSYC 201, a minimum grade of B in ENGL 204, and an overall GPA above 3.0 for transfers. Students cannot take more than five psychology courses before being admitted to the program. Meeting the minimum requirements for joining the Psychology Department does not guarantee acceptance. Transfer to Psychology from other departments within the university is academically competitive and requires departmental approval.

Students admitted as sophomores directly into the program must score a B in PSYC 201 and ENGL 204 as well as maintain a minimum average of 2.3 in their psychology courses by the end of their third regular term at AUB. Students who fail to obtain a B in PSYC 201 must repeat it in the following term to resume the program.

Students seeking to be readmitted to the program after being dropped must meet transfer requirements.

For purposes of meeting departmental admission requirements, students are not permitted to take PSYC 101 or PSYC 201 more than twice. While completing PSYC 101 qualifies a student to meet one of the admission requirements to the major, 100 level courses will not be counted towards a major requirement.

Requirements for majors include PSYC 101 or PSYC 201, PSYC 280, PSYC 282, PSYC 284, and PSYC 288. In addition to these required courses, the student must select nine courses from the following categories: Category 1 (3 out of 5 are required, but all can be taken for credit)(9): PSYC 210(3), PSYC 212(3), PSYC 214(3), PSYC 215(3), and PSYC 216(3); Category 2 (3 out of 5 are required, but all can be taken for credit) (9): PSYC 220(3), PSYC 222(3), PSYC 224(3), PSYC 226(3), and PSYC 229(3); Category 3 (the remainder are 9): PSYC 230(3), PSYC 232(3), PSYC 234(3), PSYC 235(3), PSYC 236(3), PSYC 237(3), PSYC 238(3), PSYC 239(3), PSYC 240(3), PSYC 290(3), and any course in Category 1 and 2 that has not already been chosen.

In addition to these required courses, students must complete 3 credits in Quantitative Reasoning numbered 200 or above. Also required are 6 credits in Understanding the World. A biology course is recommended.

The requirements for a BA degree in psychology are 90 credits for students entering the department at the sophomore level, including 42 credits in the major. The distribution of university requirements is as follows:

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits).

At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits). Also note that the Societies and Individuals must be an approved General Education course from outside the major.

A minor in psychology requires 15 credits: PSYC 201, PSYC 280, and three electives from PSYC 210–240. A minimum cumulative average of 2.7 is required.

A cognitive science minor (suspended as of fall 2020-21) requires 18 credits: PSYC 237 is required. PSYC 237 cannot be counted as a psychology course for the purpose of this requirement. The remaining 15 credits must be chosen from the following courses: BIOL 240, 243, 244, CMPS 201, 211, 261, 262, EDUC 215, 221, ENGL 227, 228, 232, 284, 294, PHIL 211, 220, 221, 222, 223, 257 or 258 (but not both), PSYC 210, 222, 224, 226, 229, 280, on condition that the 15 credits chosen span at least three disciplines. Students may choose a special topics course not listed above (e.g., 290 course codes), provided the topic is within the purview of cognitive science, upon approval of the course coordinator. For single major students, only 3 credits of the 15 credits taken for the minor may count towards the major.

For double major students, 6 credits taken for the minor may count towards the majors, with no more than 3 credits per major. Students are encouraged to take PSYC 237 early in the minor.

Course Descriptions

PSYC 101 Freshman Introduction to Psychological Science 3.0; 3 cr.
A survey of the principles and concepts of modern psychological science. Emphasis is placed on critically examining empirical research investigating human behavior and mental processes. Students who take this course cannot get credit for PSYC 201. Every term.

PSYC 201 Introduction to Psychological Science 3.0; 3 cr.
A survey of the principles and findings of modern psychological science. Emphasis is placed on critically examining empirical research investigating human behavior and mental processes. Students who receive credit for PSYC 101 cannot receive credit for PSYC 201. Every term.

PSYC 210 Lifespan Developmental Psychology 3.0; 3 cr.
A course on psychological development from the prenatal period to late adulthood. Students who receive credit for EDUC 225 cannot receive credit for PSYC 210. Prerequisite: PSYC 201 or PSYC 101. Every term.

PSYC 212 Social Psychology 3.0; 3 cr.
A course on the scientific study of how individuals think, feel, and behave in regard to other people, and how individuals' thoughts, feelings, and behaviors are affected by other people. Prerequisite: PSYC 201 or PSYC 101. Annually.

PSYC 214 Adult Abnormal Psychology 3.0; 3 cr.
An introduction to the research, history, and theories of abnormal behavior in adults and a critical examination of the definition, classification, prevalence, etiology and treatment of adult abnormal behavior. Topics covered include anxiety, post-traumatic stress, depression, mania, borderline personality, substance abuse, schizophrenia, and sexual abnormalities. Prerequisite: PSYC 201 or PSYC 101. Every term.

PSYC 215 Child Abnormal Psychology 3.0; 3 cr.
An introduction to the psychological disorders of childhood and adolescence, including attention deficit hyperactivity disorder, conduct disorders, autism, mood and anxiety disorders. The course begins with an understanding of abnormal behavior and proceeds to cover symptomatology, the major theories of causality, and treatment interventions. Prerequisite: PSYC 201 or PSYC 101.Every term.

PSYC 216 Personality Psychology 3.0; 3 cr.
An introduction to the research, theories, and measurement of personality with a critical examination of the influence of personality on behavior. The course surveys biological, psychodynamic, trait, humanistic, behavioral, social learning, and cognitive perspectives to the understanding of human personality and their application to individuals and organizations. Prerequisite: PSYC 201 or PSYC 101. Annually.

PSYC 220 Psychology of Learning and Behavior 3.0; 3 cr.
A course on the principles of learning and behavior. The psychology of learning, or behavioral psychology, introduces students to the psychology of learning and behavior analysis by examining the classical and operant (instrumental) conditioning paradigms from an experimental perspective. Prerequisite: PSYC 201 or PSYC 101. Annually.

PSYC 222 Behavioral Neuroscience 3.0; 3 cr.
An introduction to the neural basis of the mind and behavior. The course surveys the structure and organization of the human brain and examines how complex behavior and mental processes arise from it. Prerequisite: PSYC 201 or PSYC 101. Registration for PSYC 222 is not open to biology students who may register for the cross-listed course, BIOL 243. Annually.

PSYC 224 Sensation and Perception 3.0; 3 cr.
A course on how humans sense and perceive the environment. Topics covered include the anatomy and physiology of the sensory systems, types of stimuli affecting sensory systems, higher perceptual processing, and current knowledge and theories of our perceptual abilities. The course also emphasizes the relationships between perceptual processes and other higher cognitive functions. Prerequisite: PSYC 201 or PSYC 101. Annually.

PSYC 226 Cognitive Psychology 3.0; 3 cr.
An introduction to human cognitive processes, including perception, attention, memory, language, imagery, categorization, problem solving, reasoning and decision-making. These cognitive processes are examined with regard to human brain functioning. Prerequisite: PSYC 201 or PSYC 101. Annually.

PSYC 229 Cognitive Neuroscience 3.0; 3 cr.
An advanced course on the underlying neural mechanisms of higher mental function. Topics include brain systems implementing memory, language, decision-making, control of action, social cognition, emotions, creativity, cultural evolution, consciousness, cognitive control and brain-computer interfaces. Prerequisite: PSYC 201 or PSYC 101. Annually.

PSYC 230 Clinical Psychology 3.0; 3 cr.
An introduction to the history and development of the science and practice of clinical psychology with a critical examination of training models, approaches to clinical problems, methods of assessment, choice of empirically validated interventions, prevention strategies and career opportunities. The course surveys clinical and research activities (assessment, therapy, and consultation), settings (clinical, hospital, school, court, and private practice), and professional issues (roles, ethics, and laws). Prerequisite: PSYC 214 or PSYC 215. Annually.

PSYC 232 Health Psychology 3.0; 3 cr.
An introduction to the field of health psychology with a critical examination of the biopsychosocial model of health and the ecological model of health outcomes. The course explores the impact of five systems on individual health outcomes: the individual (including physiology), the family/ community, physical and social environments, healthcare systems and health policy. A variety of infectious diseases and chronic illnesses will be used to illustrate the roles of these systems in explaining health. Prerequisite: PSYC 201 or PSYC 101. Annually.

PSYC 234 Positive Psychology 3.0; 3 cr.
An introduction to the history and development of the scientific study of positive experiences, positive traits, and positive institutions with a critical examination of the field's theoretical and philosophical assumptions, methods of assessment, and applications to promote personal growth and fulfillment. The course surveys such topics as personal strengths, optimism, resilience, gratitude, forgiveness, humor, love, sexual intimacy, emotional intelligence, happiness, life satisfaction, and the ability to create positive environments. Prerequisite: PSYC 201 or PSYC 101. Annually.

PSYC 235 Political Psychology 3.0; 3 cr.
This course draws on the social psychological literature of intergroup relations, introducing the students to individual and group-based approaches to the study of intergroup relations, as well as political psychological research in the Arab world. Prerequisite: PSYC 101 or PSYC 201. Annually.

PSYC 236 Culture and Psychology 3.0; 3 cr.
The course aims to sensitize students to the importance of culture in psychological processes, and focuses on indigenous, cultural, and cross-cultural psychological theories and findings. Prerequisite: PSYC 201 or PSYC 101. Annually.

PSYC 237 Introduction to Cognitive Science 3.0; 3 cr.
An introduction to the interdisciplinary study of cognitive science which involves research about the workings of the mind from the fields of psychology, linguistics, philosophy, education, computer science, neuroscience, anthropology, engineering, and others. The course aims to provide students with an appreciation for the range of disciplinary perspectives and methods, and the applications of cognitive science to everyday life. Annually.

PSYC 238 Applied Behavior Analysis 3.0; 3 cr.
An introduction to Applied Behavior Analysis (ABA) or Behavior Modification, which is concerned with evidence-based applications of behavioral principles to a wide range of socially and clinically important problems. Prerequisite: PSYC 201 or PSYC 101. Occasionally.

PSYC 239 Psychology of Trauma 3.0; 3 cr.
An introductory course aimed to examine the experience and impact of trauma on children and adults. The theories of trauma will be reviewed including the developmental, cognitive, and neuroscience models of trauma and memory. The course will also cover the cultural and sociopolitical considerations of trauma as well as evidence-based treatments and post-traumatic growth. Pre/corequisite: PSYC 214 or PSYC 215. Occasionally.

PSYC 240 Special Topics in Psychology 3.0; 3 cr.
A course that provides a general overview of an area of psychology that is not normally covered by the department's offerings. Prerequisite: PSYC 201 or PSYC 101. Annually.

PSYC 280 History and Systems of Psychology 3.0; 3 cr.
A course that examines the philosophical foundations of psychology. There is special emphasis on the historical development of scientific conceptions of human behavior and mental processes in the context of contemporary psychological systems. Prerequisite: PSYC 201 or PSYC 101. Every term.

PSYC 282 Research Design in Psychology 3.0; 3 cr.
This course is the first part of the required research sequence for students majoring in psychology. It provides students with a solid foundation in the basic quantitative research methods and design, addresses ethical issues and validity in psychological research, and introduces students to statistical analyses that will be needed for PSYC 284, PSYC 290, and other research-related courses. For Psychology majors only. Prerequisite: PSYC 201 or PSYC 101. Every term.

PSYC 284 Statistical Analyses in Psychology 3.0; 3 cr.
This course is the second part of the required research sequence for students majoring in psychology. It introduces students to univariate, bivariate, and multivariate statistical analyses in psychological research and combines lectures and computer Lab sessions. Prerequisites: STAT 201 or STAT 203 or STAT 210 or STAT 231 and PSYC 282. Every term.

PSYC 288 Undergraduate Seminar in Psychology 3.0; 3 cr.
A review of significant research in major areas in psychology. Prerequisites: PSYC 282, PYSC 284, and senior standing. Every term.

PSYC 290 Undergraduate Research Project in Psychology 3.0; 3 cr.
This course requires students to plan, conduct, and write up a full empirical study. The course is meant to build upon and further develop the research and data analysis skills acquired in the required research sequence courses. Prerequisites: PSYC 282 and PSYC 284 or consent of department. A minimum grade of B in both PSYC 282 and PSYC 284 is required. Annually.

PSYC 298 Directed Study in Psychology 3–6 cr.
A tutorial course offered to psychology students with a GPA of A- or above in their major at the beginning of their senior year. This tutorial consists of independent research, original creative compositions, or directed reading, and includes the presentation of a report or thesis on the work. Students with GPAs lower than 3.7 may be admitted to directed study at the discretion of the department. Offered on request.

42 Credits in PSYC

Modes of Analysis	Understanding Communication - English and Arabic(9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (42)	Understanding the World, Quantitative Reasoning (9:3/6+3/6)	Societies and Individuals outside the major (3)	Community Engaged Learning (3)
Lecture Courses (9+12 +42+6+ 3+3+3)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Required PSYC courses (15): PSYC 101(3) or PSYC 201(3), 280(3), 282(3), 284(3), 288(3) and nine courses from the following three categories (24): Category 1 (3 out of 5 are required (9): PSYC 210(3), 212(3), 214(3), 215(3), 216(3); Category 2 (3 out of 5 are required (9): 220(3), 222(3), 224(3), 226(3), 228(3and PSYC 229 (3); Category 3 (three electives) (6): PSYC 230(3), 232(3), 234(3), 236(3), 240(3), and 290(3), and courses in Category 1 and 2 not already chosen.	Two Understanding the World courses (3) numbered 200 and above. (A BIOL course is recommended.) Required: STAT 201 or STAT 203 or STAT 210 or STAT 231	Required: (3)	Required course (3)
Seminar (3)			Required (3): PSYC 288(3)			
Laboratory (6)			Required (3): PSYC 282(3), 284(3)			
Research Project (3)			Required (3): PSYC 212(3), 214(3), 216(3), 226(3), 220(3), 232(3), 240(3), 282(3), 284(3), 290(3)			

Department of Sociology, Anthropology, and Media Studies

Chairperson	Atwood, Blake
Professor Emeritus	Dajani, Nabil
Director of Media Studies	Farah, May
Professors	Hanafi, Sari; Scheid, Kirsten; Wick, Livia Celine
Associate Professors	Atwood, Blake Robert ; Bou Ali, Nadia ; Majed, Rima ; Perdigon, Sylvain Jean Daniel
Assistant Professors	Farah, May; Kassir, Alexandra; Kelada, Mariz; Kosmatopoulos, Nikolas; Matta Saleh, Elizabeth; Mourad, Sara; Petiwala, Ada; Sukarieh, Rana; Tarraf, Zeina
Lecturers	El Andary, Rabih; Fathallah, Zeina; Hamdar, Sarah
Instructors	Abou Chabke, Joelle; Boustany, Nora; Bzeih, Bachar; Dalloul, Ali; Ghanem, Samar; Hakim Hussein Agha, Dina; Rassi, Rima; Seroujian, Narod

BA in Sociology and Anthropology

Mission Statement

This combined BA degree is designed for students with interests in both sociology and anthropology. It offers a multi-disciplinary curriculum based on the social sciences and the humanities. It prepares students to understand and engage with the social and cultural worlds we inhabit. The joint specialization in anthropology and sociology allows students to observe and investigate life in diverse societies while acquiring training in social and cultural theories and methods. It explores what it means to be a person in the Arab region and around the world by examining the ways people organize activities, social structures, institutions and belief systems. Courses will develop students' critical perspective on religion, family, class, medicine, art, displacement, war, social movements, human rights, gender, media, sexuality and colonialism. The BA prepares students to work in areas such as non-governmental and governmental organizations, think tanks, development agencies, research institutes and business and to pursue graduate work or teach in the social sciences and humanities.

Admission

Admission to the sociology-anthropology program requires a minimum grade of C+ in ENGL 203 and ENGL 204, and a grade of C+ or more in one of the following: SOAN 101, SOAN 103, SOAN 201, or SOAN 203. If admission to SOAN is based on SOAN 101 or SOAN 103, any additional SOAN or any social science course is required.

Requirements

The requirements for a BA in sociology-anthropology are 90 credits for students entering the department at the sophomore level and 120 for those entering as freshmen, including 39 credits in the major. Required courses include: SOAN 101 or SOAN 103 or SOAN 201 or SOAN 203, and SOAN 210 or SOAN 216, and SOAN 212, SOAN 213, SOAN 237, a SOAN seminar (SOAN 240-290), and 21 additional SOAN credit-hours (SOAN 200 and above). The distribution of university requirements is as follows:

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits).

At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Diploma in Development Studies

The diploma in development studies offers a variety of disciplinary and thematic approaches to development-related issues from a critical perspective rooted in the Global South. The diploma academically prepares students for careers in the development, humanitarian and aid sectors, as well as for careers in research centers or the policy world. It also prepares students for graduate or post-graduate studies in the field of development studies (or other related social science disciplines).

Coursework

The diploma in development studies requires eight courses, including six courses from predetermined subject areas and two elective courses. Please note that the diploma is at the undergraduate level. For graduate level courses to be taken, students must be of senior standing, not on probation, and must secure the consent of the department.

Required Courses

A total of 24 credits (eight courses) are required for the diploma.

1. SOAN 219 Introduction to Development Studies
2. SOAN 210 Research Methods
3. Globalization, Inequality and Development. Pick one of the following (or equivalent as approved by the adviser): SOAN 223 Social Inequality: Conflict and Consensus, ECON 237 Economic Development I, PSPA 238 International Political Economy: From Imperialism to Globalization, PPIA 306 Political Economy
4. Labor, Migration and Development. Pick one of the following (or equivalent as approved by the adviser): SOAN 290AX Economy and Society, SOAN 323AE Making and Unmaking Markets, ECON 222 Labor Economic
5. Humanitarianism, Forced Migration and Development. Pick one of the following (or equivalent as approved by the adviser): SOAN 242 Seminar in Globalization and Migration, SOAN 245 Seminar in Transitional Justice, SOAN 318 Human Migration
6. Gender and Development. Pick one of the following (or equivalent as approved by the adviser): SOAN 225 Gender and Culture, SOAN 290(TBA): Gender and Development
7. Two electives chosen with the approval of the adviser.

Admission Requirements

For Non-AUB: New students should obtain an application from the Office of Admissions and apply as new students. Applications are reviewed by the department and, when accepted, students are classified as special students working for a diploma. Completion of the bachelor's degree is a requirement for admission of new students to the development studies diploma, in addition to proof of efficiency in English. Relevant work experience is favorable.

For AUB students: AUB students working for their bachelor's degree at AUB have to apply to the department directly after completion of their sophomore year with an overall GPA higher than 3.3.

Course Descriptions

SOAN 101 Freshman Sociology 3.0; 3 cr.
An introduction to the principles and concepts of sociology to prepare students for majoring in sociology. Students who take this course cannot receive credit for SOAN 201. Every term.

SOAN 103 Reading Other Cultures 3.0; 3 cr.
An introduction to the study of other cultures drawing on film, ethnographic case studies, and topical debates. This course presents basic concepts in the comparative study of culture, methods of observing and interpreting other cultures, a sense of how knowledge about other cultures is constructed, and tools to develop a critical awareness of one's own cultural traditions. Note that this course is classified as a humanities, not a social science, course. Students may take it to fulfill the humanities requirement of their freshman year but not in fulfillment of the freshman social sciences requirement. Students may receive credit for both SOAN 103 and SOAN 203. Every term.

SOAN 201 Introduction to Sociology 3.0; 3 cr.
An introduction to the study of social phenomena. Basic concepts, principles, and methods common to the study of society are employed for the analysis of structure and change in society. This course includes the structure and origin of some basic human institutions such as family, kinship, religion, and language. Students who have received credit for SOAN 101 cannot receive credit for SOAN 201. Students may receive credit for both SOAN 201 and SOAN 203. Every term.

SOAN 203 Introduction to Anthropology 3.0; 3 cr.
An introduction to socio-cultural anthropology. Anthropology offers comparative perspectives on the ways people live in the world. In doing so, it challenges some of our commonly held assumptions about what is natural and universal. The course will explore anthropology's approaches, concepts and methods emphasizing case studies from different settings. Students may receive credit for both SOAN 201 and SOAN 203. Every term.

SOAN 210 Research Methods 3.0; 3 cr.
A survey of the basic techniques and designs of social research, including both quantitative and qualitative methods, the relationship between micro and macro approaches to society, and the interplay between theory and research. Alternate years.

SOAN 211 Analysis of Social Data 3.0; 3 cr.
A survey of basic statistical techniques and other methods of quantitative analysis used in analyzing social data. Students participate in the analysis of research data by applying various analytical techniques using computer packages. They will also interpret research findings and write a research report. Annually.

SOAN 212 History and Theory in Anthropology 3.0; 3 cr.
A survey of some of the major theoretical perspectives and critical issues of classical and contemporary anthropological theory. Special focus is placed on the intellectual history of the discipline, an analysis of the contexts in which it developed and tools to recognize and critically evaluate different perspectives on culture and society. Annually.

SOAN 213 Sociological Theory 3.0; 3 cr.
A survey of some of the major theoretical perspectives and critical issues of classical and contemporary sociological theory. Special focus is placed on four interrelated dimensions: 1) the nature of sociological theory and its intellectual sources, 2) its classic tradition, particularly the legacies of Marx, Durkheim, and Weber, 3) an exploration of salient contemporary perspectives, 4) the emergence of new theories and/or directions, such as post-modernity and global sociology. Alternate years.

SOAN 215 Anthropology of America 3.0; 3 cr.
A critical examination of conceptions of "mainstream" or "dominant" American culture. Using ethnographic case material, the course explores cultural systems and social structures in the contemporary United States, offering an introduction to anthropological approaches to the study of complex societies. Alternate years.

SOAN 216 Hands-On Anthropology 3.0; 3 cr.
An introduction to the techniques, theories, and debates concerning ethnographic fieldwork. What do anthropologists actually do and what is unique about anthropological research? This course explores the politics and ethics of research, kinds of observation, effective interviewing strategies, note-taking, ways of 'coding' or indexing information, data analysis, and approaches to writing. Alternate years.

SOAN 217 Anthropology of the Body 3.0; 3 cr.
An examination of cultural and historical variations in perceptions and experiences of the human body. The course focuses on the ways the human body is culturally constructed and socially experienced, through case studies of labor, sport, health, illness, sexuality, gender, display, and religious ritual. Annually.

SOAN 218 Medicine, Disease and Society; 3.0; 3 cr.
This course draws on medical anthropology to explore our understanding of disease, healing and care. It emphasizes the global and cross-cultural significance of medicine and people's unequal struggles for care. It asks: How do values, technologies, and ideas of normality inform medical practice? How do people diversely experience and narrate pain, misfortune and treatment uncertainty? How are therapies successful? What are the relations and differences between biomedical frameworks and other forms of healing and care in unequal local moral worlds? Occasionally.

SOAN 219 Introduction to Development Studies 3 cr.
This course aims to introduce students to one of the most widespread but also contested aspects of policy-making today. Development has become a universal catchword - widely used (and abused) by politicians and policy experts to explain (in some version to construct) the economic and cultural gap between "developed" and "underdeveloped" countries. In academic circles, Development Studies emerged as a multidisciplinary field in order to engage with this process, concerning itself with understanding development as a long run historical process of social and/or ecological transformation; as a normative vision, description or measure of the state of being of a desirable society or global order; and as an often critical analysis of efforts at improvement undertaken by a variety of "developmental agencies" ranging from governments through social movements and civil society actors to international organizations. Occasionally.

SOAN 220 City and Society 3.0; 3 cr.
An introduction to some of the leading conceptual and methodological perspectives for the study of transformations in human settlements. The course explores issues associated with the evolution of cities, their spatial and cultural features, and the social production of informal space and the gendering of space. Changing trends and patterns in third world urbanization are explored with special focus on the Arab World, global, and post-modern cities. Alternate years.

SOAN 221 Political Anthropology 3.0; 3 cr.
This course explores the everyday practices of the larger structures that create and perpetuate power. It emphasizes students' awareness of the state apparatus, non-state political systems and modes of political exclusion that shape the experience of power locally and trans-nationally. It uses prominent schools of thought, among them Marxism, feminism, Foucauldian and post-colonial theories to provoke critical analyses of power in our own lives. Alternate years.

SOAN 222 Family and Kinship 3.0; 3 cr.
The course examines, from a comparative perspective, different forms of family and kinship organization, their relation to production and systems of exchange. Special focus is placed on processes of initiation and reproduction, and cultural expression of relatedness. Alternate years.

SOAN 223 Social Inequality: Conflict and Consensus 3.0; 3 cr.
The course explores theories of social inequality. It addresses issues such as class, status, and gender inequalities and points to sources of conflict and consensus. Arguments for and against equality are canvassed. Alternate years.

SOAN 224 Sexuality and Society 3.0; 3 cr.
The course provides a comparative conceptual framework to explore the changing nature of sexuality in society. Special focus is placed on the social construction of sexual identities, sex and the body, the place of desire and the changing form of romantic love, erotica and pornography, the commodification of intimacy, sexual ethics and sexual politics in a globalized world. The course also focuses on the dynamics of male-female relations in Arab society. Alternate years.

SOAN 225 Gender and Culture 3.0; 3 cr.
An examination of gender holistically and cross-culturally from a social-anthropological perspective. This course examines how meanings of sex variation are constructed and gender is performed by individuals and groups in different societies. It studies the roles of women and men in ritual, in economic and political systems, and in other social arenas. Annually.

SOAN 226 Religion and Society 3.0; 3 cr.
A course that examines the relationship between society and religion, including both formal institutions and informal processes, which deal with the supernatural. This course studies the origin and development of ritual and religious functions for both the individual and society. Alternate years.

SOAN 227 Cultural Boundaries and Identities 3.0; 3 cr.
Cultural Boundaries and Identities.

SOAN 228/MCOM 203 Arab Media and Society 3.0; 3 cr.
An in-depth examination of the political, social, economic, and technological effects of old and new Arab media systems on modern Arab society, with an emphasis on Lebanon and the Arab East region. It focuses on probing the development and current state of print, broadcast and new media systems in the region. Annually.

SOAN 229/MCOM 202 Communication Theory 3.0, 3 cr.
An overview of the ways in which mass communication has been viewed by social scientists and by practitioners, with a focus on the range of issues studied and questions raised, the schools, approaches, and trends in the field. Annually.

SOAN 230 Political Sociology 3.0, 3 cr.
This course will provide an overview of the main theories and approaches in political sociology, and it will cover some of the key concepts in the field. It will start with a general introduction to political sociology and its relevance. This will be followed by a survey of the main classical schools of thought including pluralism, elite theories, Marxism, and corporatism. The course will then explore more contemporary theories in political sociology including authors such as Foucault, Gramsci, Arendt, Baumann or Skocpol. Following this general introduction, the course will then tackle major concepts and attempt to examine them through relevant case studies. These concepts will include: civil society, political organization, capitalism and neoliberalism, globalization, nation and nationalism, gender and sexuality, race, ethnicity and sectarianism, identity politics, contentious politics, social movements, revolution and violence. Occasionally.

SOAN 232 Conflict Analysis and Resolution 3.0; 3 cr.
An overview of the field of conflict analysis and resolution. This course covers the history of conflict studies, theories of conflict, and methods of dispute resolution. Annually.

SOAN 236 Semiotic Anthropology: An Introduction to Signs in Society 3.0; 3 cr.
An introduction to semiotic anthropology as a method for analyzing how language and other sign systems contribute to shape everyday interactions, social institutions and the various ways in which humans inhabit the world. Students will approach works by major authors who sought to theorize the structure of signs and sign systems and learn to recognize the various modes of anthropological interpretation that these works inspired. Case studies will demonstrate how the toolbox of semiotic anthropology can be brought to bear on a range of topics, including gender and sexuality, the social formation of subjectivity, the emergence of political collectives, religion and modernity, and human-nonhuman interactions. Alternate years.

SOAN 237 Arab Culture and Society 3.0; 3 cr.
A study of contemporary Arab society: its complexity, diversity, and internal dynamics. This course considers social structures, social groups, cultural patterns, and processes and agents of social and cultural change, and examines current debates on major issues in Arab culture and society. Listed as SOAN 214 prior to fall term 2012-13. Prerequisite: junior or senior status or consent of the instructor. Every term.

SOAN 238 Special Topics (Humanities) 3.0; 3 cr.
A course that provides a general overview of an area in the humanistic social sciences that is not normally covered by the department's offerings. Note that this course is classified as Cultures and Histories, not as Societies and Individuals, course.

SOAN 239 Special Topics (Social Sciences) 3.0; 3 cr.
A course that provides a general overview of an area in anthropology or sociology that is not normally covered by the department's offerings. Occasionally.

SOAN 240 Seminar in Human Rights and Cultural Differences 3.0; 3 cr.
A seminar that provides students with an introduction to the history, concepts, institutions, and applications of human rights. Although drawn mainly from a Western perspective, applications are canvassed from the Middle East as well. Discussions cover philosophical foundations of human rights law; discrimination, xenophobia, and racism; civil, political, social, and economic rights; women's rights; children's rights; rights of minorities and indigenous people; and migrant workers' rights. Alternate years.

SOAN 242 Seminar in Globalization and Migration 3.0; 3 cr.
An introduction to a range of issues related to theories of migration with particular emphasis on the peculiarities of contemporary globalization. Theoretical considerations include assumptions and case studies from sociology, economics, political economy, and anthropology. Concepts such as network theory, transnationalism, and the international division of labor are used to illuminate issues such as citizenship and identity, refugees, forced migration, nationalism, and ethnicity as they relate to the migratory experience. Alternate years.

SOAN 243 Seminar in Media Studies 3.0; 3 cr.
An undergraduate seminar on the role of communication in society. The content areas may change. May be repeated for credit. Annually.

SOAN 244 Digital Worlds and Societies 3.0, 3 cr.
Digital technologies are radically transforming the world. This course explores the kinds of digital activities people engage and mediate as they go about their daily lives. We engage ethnographic text and film that shed light upon people's diverse experiences in their digital encounters such in their modes of communication. As such, the course offers students an opportunity to better understand the political, economic, social, cultural, and historical aspects of themes ranging from virtual worlds, digital marketing and finance, digitization of bureaucracies and infrastructures, such as healthcare, digital activism, and human and robot relations. The course provides students with an introduction to methods in anthropology and sociology used to study digital daily life. Occasionally.

SOAN 245 Seminar in Transitional Justice 3.0; 3 cr.
The seminar is an exploration of the strategies and courses of action societies confront as they consider legacies of past human rights abuses or atrocities. It examines the ways in which states and the international community attempt to achieve justice in periods of political transition. Some of the leading theories and applied dimensions will be critically assessed in the light of the operation of international and domestic criminal justice, historical and administrative justice. Annually.

SOAN 250 Seminar in Art and Culture 3.0; 3 cr.
A cross-cultural exploration of art as an idea, an object, a history, and a way of interacting with the world. How is art a universal category? This course applies anthropological theories to the study of art and art theories to the study of human society. Particular attention is paid to local resources and archives. Occasionally.

SOAN 251 Seminar in Anthropological Thought 3.0; 3 cr.
An investigation of the major theories guiding anthropological thinking today, through a historically contextualizing overview. This course introduces students to a range of theoretical propositions concerning such topics as agency, structure, subjectivity, power, and the politics of representation by reading primary texts from landmark figures in sociocultural anthropology. Occasionally.

SOAN 252 Seminar in Controversies: Ethics and Epistemology 3.0; 3 cr.
An investigation of the cases that have shaken the discipline of anthropology and/or sociology. This course uses some issues including cannibalism and espionage to enter into some of the core concerns in the study of humans. What have been the ethical controversies moving our discipline? What are the epistemological questions raised by the controversies? Occasionally.

SOAN 253 Political Sociology in the Arab World 3.0; 3 cr.
This course tackles the question of power and society in the contemporary Arab world. It attempts to understand the political sociology of these societies through a focus on critical thinking and case studies. The course starts with a general introduction to the field of political sociology and its application in the Arab region. It then moves to exploring the concept of "orientalism" and its critique. This is followed by a discussion on researching Arab societies and some of the major problems faced or created by researchers. The rest of the course tackles some of the most pertinent debates in the Arab world today including: the role of civil society, the importance of organization, social classes and inequality, gender and politics, nationalism, sectarianism, political Islam, the Arab uprisings, the role of youth, war, and violence. Occasionally.

SOAN 290 Special Topics Seminar 3.0; 3 cr.
SOAN faculty or visiting professors and recognized scholars might be invited to offer seminars to explore relevant dimensions of their research in progress. Occasionally.

SOAN 299 Directed Study 3–6 cr.
A tutorial course offered to SOAN students with a GPA of 3.7 or above in their major at the beginning of their senior year. This tutorial consists of independent research, original creative compositions, or directed reading, and includes the presentation of a report or thesis on the work. Students with GPA lower than 3.7 may be admitted to directed study at the discretion of the department. Occasionally.

39 Credits in SOAN

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (Min. 39+6)	Understanding the World, Quantitative Reasoning (9:3/6+3/6)	Societies and Histories outside the major (3)	Community-Engaged Learning (3)
Lecture Courses (9+12 +39+6+ 3+3)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Required 15 SOAN 101(3), 103(3), 201(3), 203(3),210(3), 216(3), 212(3), 213(3), 237(3) Electives (21) from SOAN 200-299	Required 6 Understanding the world courses. Required 3 credits SOAN 211	Required 3 credits	Required course (3)
Seminar (3)			Required (3) from SOAN 240(3)-SOAN 290			

BA in Media and Communication

Mission Statement

The BA in media and communication offers students an interdisciplinary curriculum based in both the liberal arts and social sciences, and prepares students to engage with the complexity of contemporary media. The program offers a regional and global perspective, focusing on the role of media in Arab society. Students learn systematic and critical modes of inquiry into the nature, processes and consequences of media in both historical and emerging contexts. Students also develop relevant practical skills, coupled with critical, ethical and political perspectives on contemporary social and cultural landscapes.

Admission

Students wishing to major in media and communication are accepted provisionally until they have achieved an average of 3.0 or more in MCOM 201 (within their first three terms), and an average of 3.0 or more in ENGL 203. Students admitted as media and communication majors must maintain a GPA of 2.3 or more in their first three terms in major courses in order to remain in the program.

Transfer to media and communication from other departments within FAS is competitive and requires approval of the media studies program. Students will be considered for transfer to Media and Communication if they obtain a minimum cumulative average of 3.0 in MCOM 201 and one List A Elective (of the students' choice), a minimum cumulative average of 2.7 in all MCOM courses taken, a minimum grade of B in ENGL 203, and a minimum cumulative average of 3.0 in ENGL 203 and ENGL 204 (if ENGL 204 is taken).

Requirements

The requirements for a BA degree in media and communication are 90 credits for students entering the department at the sophomore level, including 39 credits in the major, and at least 36 credits of General Education courses, as required by the university.

Requirements for the BA program are MCOM 201, MCOM 203, MCOM 204, MCOM 294, and MCOM 296, 15 credits of any List A elective (MCOM 202, 205, 206, 207, 208, 215-239, 261- 292, 299), and 9 credits of any List B elective (MCOM 240-259, MCOM 293, or ARAB 223).

In addition, students must take CMPS 207, SOAN 237, MCOM 218 (Community Engaged Learning) and either MCOM 210, PSPA 203, STAT 203, or any research methods class approved by the adviser. MCOM students cannot receive credit for more than one of the following courses: MCOM 210, PSPA 203, STAT 203.

Students are encouraged to pick one of the following optional tracks to structure their program of study.

Culture and Media Track

The Media and Cultural Studies track considers the intersections of culture and power and investigates media as a key site of their convergence. It engages key theories and methods in cultural studies to ask how meaning, identity, and social relations are constituted within the vast array of media. This track produces and consumes today, paying particular attention to questions of gender, race, class, sexuality, and mobility, amongst others. The courses encourage the exploration of a diversity of media and cultural forms—from television and cinema to digital platforms and media industries–as graduates of the track learn how to pair fine-grained analysis of media texts with broader political-economic formations.

Required Courses: MCOM 201 Introduction to Media Studies, MCOM 203 Arab Media and Society, MCOM 204 From Telegraph to Twitter, MCOM 210 Research Methods.

In addition to the core media classes, students should take 2 required List A electives, in addition to 3 List A electives and 3 List B electives from the following lists:

List A Required Electives: MCOM 208 Introduction to Cultural Studies, MCOM 220 Popular Culture.

List A Electives (choose 3 from the following): MCOM 219 Media Depictions of Society, MCOM 227 Media and the Environment, MCOM 221 War and Media, MCOM 222 Introduction to Visual Culture Studies, MCOM 229 Sex, Gender, and Media in the Middle East, MCOM 234 Labor, Media, and Gender.

List B Electives (choose 3 from the following): MCOM 246 Multimedia Production, MCOM247 Trauma Journalism, MCOM 251 Photojournalism, MCOM 253 Social Media Strategies.

Digital Cultures Track

The digital cultures track is designed to address the way digital media, and more recently AI, has transformed how we communicate, and access and exchange information and entertainment. The focus is on content creation, distribution, and consumption, both analytically and creatively. In other words, this track integrates theory with practice, as students take electives that promote critical approaches to digitization, as well as those that allow them to hone their practical skills. It is attempted to understand not only shifting definitions of what constitutes ethical media practices, but also the political, economic, and cultural impact of our evolving media landscape. For example, as content producers, journalists today need to be multi-media specialists ready to create content for various platforms. Content refers to images, audio and text that are created, distributed, and access via digital platforms.

Required Courses: MCOM 201 Introduction to Media Studies, MCOM 203 Arab Media and Society, MCOM 204 From Telegraph to Twitter, MCOM 210 Research Methods.

In addition to the core media classes, students take 2 required List A electives, in addition to 3 List A electives and 3 List B electives from the following lists:

List A Required Electives: MCOM 228 Intro to Digital Media, MCOM 209 Political Economy of Content Creation.

List A Electives (choose 3 from the following): MCOM215 Media Law and Ethics, MCOM 223 On Television, MCOM 226 Journalism and Society, MCOM 227 Media and the Environment, MCOM 234 Labor, Media, and Gender.

List B Electives (choose 3 from the following): MCOM 240 Basic new reporting, MCOM 246 Multimedia production, MCOM 250 Video editing, MCOM 251 Photojournalism, MCOM 252 Digital Media Practices, MCOM 253 Social Media Strategies.

Film Studies Track

The film studies track equips students with the critical tools to analyze cinema as a cultural, aesthetic, and industrial form. Drawing on approaches from film theory, media history, and industry studies, the track explores how films are produced, circulated, and received within global and regional contexts. Students engage with cinema as both an art form and a commercial medium, examining its role in shaping social meaning, identity, and power. In addition to analytical coursework, students have opportunities to gain hands-on experience in filmmaking and film criticism enabling them to better understand the creative and collaborative processes behind film production.

Required Courses: MCOM 201 Introduction to Media Studies, MCOM 203 Arab Media and Society, MCOM 204 From Telegraph to Twitter, MCOM 210 Research Methods.

In addition to the core media classes, students take 2 required List A electives, in addition to 3 List A electives and 3 List B electives from the following lists:

List A Required Electives: MCOM 206 Introduction to Cinema, MCOM 207 Film Criticism.

List A Electives (choose 3 from the following): MCOM 222 Introduction to Visual Culture, MCOM 224 World Cinema (a….z), MCOM 234 Labor, Media and Gender, MCOM 236 Film Genres (a….z).

List B Electives (choose 3 from the following): MCOM 248 Introduction to Filmmaking , MCOM 250 Video Editing, MCOM 254 Sound Editing, MCOM 293N Short Video Writing and Production.

University General Education Requirements

The general education requirements are Understanding Communication - English (6 credits), Understanding Communication - Arabic (3 credits), Cultures and Histories (9 credits), Human Values (3 credits), Societies and Individuals (6 credits), Understanding the World and Quantitative Reasoning (9 credits with at least 3 credits from each), and Community Engaged Learning (3 credits).

At least one of the courses from Cultures and Histories or Human Values should be from the History of Ideas: CHLA. At least one course from your degree requirements (except Understanding Communication) should cover the theme of Social Inequalities (3 credits).

Course Descriptions

MCOM 101 Understanding Media 3.0; 3 cr.
This course is a beginner-friendly introduction to the field of critical media studies, preparing students to understand how media shape the way we understand the world and interact with one another. Students will examine media's visual styles, cultural meanings, political roles, and everyday uses, while also considering how they are created, disseminated, and controlled. Through engaging discussions, accessible readings, and examples from film, television, and social media, the course encourages students to think critically about the media they encounter on a daily basis. Students may receive credit for both MCOM 101 and 201.

MCOM 201 Introduction to Media Studies 3.0; 3 cr.
An introduction to the field of media studies, its concepts and theories, and the various modern media industries and professions in today's world. The course aims to help students become better informed about career options in this field and more discerning media consumers. Pre/corequisite: ENGL 203. Annually.

MCOM 202 Communication Theory 3.0; 3 cr.
An overview of the ways in which mass communication has been viewed by social scientists and by practitioners, with a focus on the range of issues studied and questions raised, and the schools, approaches, and trends in the field. Pre/corequisite: ENGL 203. Annually

MCOM 203 Arab Media and Society 3.0; 3 cr.
An in-depth examination of the political, social, economic, and technological effects of old and new Arab media systems on modern Arab society, with an emphasis on Lebanon and the Arab East region. It focuses on probing the development and current state of print, broadcast and new media systems in the region. Pre/corequisite: ENGL 203. Annually.

MCOM 204 From Telegraph to Twitter: Media History 3.0; 3 cr.
This course situates the history of communication – from the telegraph to today's social media – as more than a history of technology, and discusses the complexity with which the social world is constructed. Both technology and history enter into conversation, opening up points of critical engagement of modern understandings of the world. Pre/corequisite: ENGL 203. Annually.

MCOM 205 Interpersonal Communication & Folk Media 3.0; 3 cr.
This course examines the interpersonal communication process with a focus on the folk (oral) media as traditional face to face communication media. The course involves an interdisciplinary investigation of relationships between Arab daily life and folk media, roles of formulating folk culture in theatre and films, and popular music and its audience. Pre/corequisite: ENGL 203. Occasionally.

MCOM 206 Introduction to Cinema 3.0; 3 cr.
This course is designed to introduce students to the study of cinema. Three major areas of study will be emphasized: cinema history, film analysis, and global industries. Students are required to attend two lectures a week as well as weekly film screenings. Pre/corequisite: ENGL 203. Annually.

MCOM 207 Film Criticism 3.0; 3 cr.
This course reconsiders the central questions of film theory through a global lens. Students engage classic writings on realism, montage, spectatorship, authorship, and the cinematic image, alongside more recent interventions that emerge from a wide range of cultural and scholarly contexts. Weekly screenings place films from multiple traditions in conversation with theoretical texts, opening up debates about what cinema is, how it is experienced, and how it circulates across borders. Together we ask how film theory has been shaped by questions of power, history, and identity, and how those questions shift when approached from different perspectives and locations. Pre/corequisite: ENGL 203. Occasionally.

MCOM 208 Introduction to Cultural Studies 3.0; 3 cr.
This course introduces students to the diverse intellectual traditions and critical approaches that animate the study of culture. We will explore how meaning and identity are constructed in everyday life, examining how cultural artifacts and practices carry social, political, and aesthetic significance. Focusing on critical readings from key texts and thinkers across different fields of thought, we will cover a wide range of topics: ideology and power, subjectivities, race, gender and sexuality, globalization, postmodernism, and others. Through textual and visual analysis of cultural texts, discussion, debate, and essays, students will gain an understanding of how to approach contemporary cultural issues through a foundation in the diverse theoretical movements that have shaped cultural studies. Pre/corequisite: ENGL 203. Occasionally.

MCOM 209 Political Economy of Content Creation 3.0; 3 cr.
This course explores the political economy of media content and its creation, with a focus on how cultural production is shaped by economic, technological, and institutional forces. Drawing on thinkers such as Karl Marx, Pierre Bourdieu, Bruno Latour, Crystal Abidin, Tarleton Gillespie, and others, we will connect theories of commodification, labor, and digital capitalism to the notion of “content” and what producing content means today. We will investigate how questions of power, profit, and labor intersect with individual expression, examining case studies across film, television, music, journalism, and online content industries. Students will gain critical tools for understanding how content is produced, monetized, and consumed, and what these processes reveal about the tensions between creativity and commerce, as well as independent and platformed production.

MCOM 210 Research Methods in Media Studies 3.0; 3 cr.
An introduction to the design and implementation of research methodology in media studies. It covers formulating research problems, reviewing scientific literature, designing instruments, and utilizing data collection and analysis techniques, both quantitative and qualitative. Students participate in actual research projects and apply various techniques of data collection and analysis to interpret research findings. Pre/corequisite: ENGL 203. Occasionally.

MCOM 215 Media Law and Ethics 3.0; 3 cr.
A survey of Lebanese, Arab and International media laws and regulations, and their application within the realms of journalism, public relations, advertising, digital media, and entertainment, with an exploration of ethical guidelines, moral values, and social responsibilities of media scholars, practitioners and educators. Pre/corequisite: ENGL 203. Occasionally.

MCOM 216 Public Opinion 3.0; 3 cr.
A general study of the nature of public opinion, and the interplay between psychological and socio-cultural processes in the formation and dissemination of public opinion. An attempt is also made to explore the impact of public opinion on media and socio-cultural change. Measurements of public opinion are also explored. Pre/corequisite: ENGL 203. Occasionally.

MCOM 217 Political Communication Campaigns 3.0; 3 cr.
This course introduces students to the subfield of political communication, covering its main theories, research methods, and modern applications and strategies. Students gain theoretical and working knowledge of political campaign operations, political press offices, the roles of a political press secretary, media adviser, and communication director, and the technologies used in modern political campaigns. Pre/corequisite: ENGL 203. Occasionally.

MCOM 218 Media Activism for Social Change 3.0; 3 cr.
An introduction to the theories and strategies of media use for non-violent activism and advocacy campaigns and social movements, with a focus on principles of civic activism in the era of digital media convergence. The course balances theory and skills by examining case studies of media activism from around the world and using digital media tools with a stress on digital tools and civic activism principles to develop social and political change campaigns for civil society groups. Pre/corequisite: ENGL 203. Occasionally.

MCOM 219 (A….Z) Media Depictions of Society 3.0; 3 cr.
This course examines the role of the media in constructing our social reality through an examination of media practices, both historically and in the present. Different themes and foci will be explored, with an eye to covering the politics of culture and identity as they shape and intersect with today's globalized media. Pre/co-requisite: ENGL 203. May be repeated for credit. Occasionally.

MCOM 220 Popular Culture 3.0; 3 cr.
From the mid-20th century until the present moment, popular cultural productions and consumer products have become ubiquitous worldwide. While globalized chains of production and distribution account for the availability of these cultural products, we ask what is the significance of their popularity? What are the histories of these commodities, and what tensions do they reconcile or expose in the cultures from which they emerge? And, indeed, what precisely is popular culture, anyways? Pre/corequisite: ENGL 203. Occasionally.

MCOM 221 War and Media 3.0; 3 cr.
This seminar asks 'what is a visual culture of war?" as it expands across an array of media platforms, technologies, and aesthetic conventions. Through a careful examination of key readings and visual representations, we will work to build a more precise theoretical and analytical language for understanding war not simply as an "event" or set material effects on the battlefield and home front, but as a discursive production mediated through a number of often intersecting media sites and institutions. Pre/corequisite: ENGL 203. Occasionally.

MCOM 222 Introduction to Visual Culture 3.0; 3 cr.
This course examines the role images play in society. Students will explore key historical and contemporary issues, and critical perspectives on the relations of power and desire that structure practices of looking. Students will become familiar with methods of comparing different media forms, social arenas, and cultural contexts. Students will also pursue a research-intensive final project that welcomes image-making as part of the research/writing process. Pre/corequisite: ENGL 203. Annually.

MCOM 223 On Television 3.0; 3 cr.
Students are exposed to the study of television as a distinctive approach to the study of the media landscape. The class will explore television's political and economic structures, cultural form, and social function in a range of national, regional, and global contexts. Pre/corequisite: ENGL 203. Occasionally.

MCOM 224 (A….Z) World Cinemas 3.0; 3 cr.
In this undergraduate seminar, students will examine film cultures in various national and transnational settings. Through close readings of current scholarly literature, weekly film screenings, and seminar discussions, students will interrogate the relationship between culture and politics and explore such contested topics as identity, memory and trauma, power and resistance, and spectacle and surveillance. Pre/corequisite: ENGL 203. May be repeated for credit. Occasionally.

MCOM 226 Journalism and Society 3.0, 3 cr.
This course examines the various forms and phases of transition that have framed the evolution of journalism and the relationship between these transitions and social, political, economic and technological factors, with a focus on the current digital age. The course traces the trajectory of the industry's transformations in addition to the challenges and debates - both academic and societal - that have emerged in parallel to this trajectory. This comprises introductory issues relevant to the basic definition of journalism as well as more contemporary topics pertaining to the challenges of market-oriented digital production, media activism and political restraint, media trends and identity formation, the birth and evolution of new media platforms and applications, and the proliferation of digital entrepreneurship. Pre/corequisite: ENGL 203. Annually.

MCOM 227 Media and the Environment 3.0; 3 cr.
This course examines media's role in shaping the built and natural environments around us. It draws on developments in environmental communication and critical media infrastructure studies to consider media both as modes of communication and as technologies with material forms. The course explores the genres and communication strategies used by activists, artists, and media producers to articulate the environment and its problems. Prerequisite: Pre/corequisite: ENGL 203. Occasionally.

MCOM 228 Introduction to Digital Media 3.0; 3 cr.
In this course, students will learn how to navigate an ever-changing media reality beginning with digital media's origins and exploring its various life-moment. Pre/corequisite: ENGL 203. Annually.

MCOM 229 Sex, Gender & Media in the Middle East 3.0; 3 cr.
In examining how discourses of gender and sexuality have shaped the ways in which the "Middle East" has come to be imagined, this seminar will cover key debates that have, in turn, shaped academic knowledge production on gender in the region, The course also examines media's central role in the production and circulation of discourses and counter-discourses on the status of women and sexual minorities, as well as men and masculinities, in the Middle East. Pre/corequisite: ENG 203. Occasionally.

MCOM 234 Labor, Media, and Gender 3.0; 3 cr.
Examining theories of labor, creative economy, and media industries, this course explores the various entanglements between labor, media, and gender. It examines why certain kinds of creative labor—from filmmakers to social media influencer—have become gendered and to what end. The course also studies how media industries have understood and represented gendered labor. Rather than view media work as a static entity, it determines how industrial shifts, technological developments, and economic reforms have shaped creative labor. Pre/corequisite: ENG 203. Occasionally.

MCOM 235 Children's Media 3.0; 3 cr.
What is the importance of children's media? What content is generally aimed at children? To what extent is children's media a socializing agency? What impact does media have on children? What does children's media reflect about the wider social, cultural, ideological and political level – particularly that of producers and institutions? In this course, we will answer these questions by exploring children's media both in the West and the Arab world. We do so through focusing on different media platforms including print, television, video games and cartoon among others. We also explore the significance of children's media in identity making and character and intellectual education processes and critically examine literature that highlights the positive and negative effects of media on young people. Pre/co-requisite: ENGL 203. Formerly: MCOM 290M.

MCOM 236 (A…Z) Film Genres 3.0; 3 cr.
Courses offered under this rubric explore the history and contemporary developments of film genres and the theories that shape their study. Each version of the course focuses on a specific genre—for example, horror, science fiction, western, or film noir—and examines the cultural, aesthetic, and narrative features that contribute to its enduring appeal and popularity. At the same time, students are encouraged to question the seeming universality of genre conventions by considering the power dynamics embedded within them, including colonialism, white supremacy, capitalism, and gender inequality. Pre/corequisite: ENGL 203. May be repeated for credit. Occasionally.

MCOM 240 News Reporting and Writing 3.0; 3 cr.
An introduction to the reporting and writing of various news stories based on reliable information gathered through interviewing, research, and observation. Formats include basic newspaper and magazine articles, online news, press releases, and other journalistic formats, with emphasis on accuracy, concise presentation, meeting deadlines, and objective and ethical reporting. The course covers news styles, an expanded news vocabulary, sentence structure, story organization and clean writing. Pre/corequisite: ENGL 203. Every term.

MCOM 244(A….Z) Specialized News Reporting and Writing 3.0; 3 cr.
The course explores specialized reporting and writing techniques, including feature stories, opinion columns, profiles, in-depth series, and narrative journalism. It aims to enable students to report and write effectively across news genres and to master transferable communication skills useful beyond the journalism profession. Each term the course covers some specialized and emerging journalism themes, including investigative reporting, data journalism, covering conflict, and violence, technology journalism, non-fiction narrative, and others. May be repeated for credit. Pre/corequisite: ENGL 203. Occasionally.

MCOM 246 Multimedia Production 3.0; 3 cr.
An introduction to digital and multimedia production, covering basic digital and Web design principles, photojournalism, audio reporting, video journalism, news blogging, social media reporting, CMS managing, multiplatform publishing, and writing for a converged news environment. It also covers emerging new media issues, such as interactivity, information architecture, and individualization. Pre/ corequisite: ENGL 203. Occasionally.

MCOM 247 Trauma Journalism 3.0; 3 cr.
This course aims to sensitize and train students on how to deal with victims of trauma, conflict and violence, including war, suicide, homicide, rape, domestic violence and other traumatizing experiences. It teaches students how to ethically and fairly cover trauma victims, how to protect themselves physically and psychologically from the negative effects of trauma reporting, and how to professionally and sensibly tell the trauma story to their audiences. Pre/corequisite: ENGL 203. Occasionally.

MCOM 248 Introduction to Filmmaking 3.0; 3 cr.
This filmmaking course guides students through the complete creative process of bringing stories to life on screen, from initial concept to final presentation. Blending a concise overview of film history with intensive hands-on practice, the course emphasizes storytelling across multiple visual and audio mediums. Students will explore the fundamentals of script development, visual language, and production workflows while engaging with real-world tools and techniques. Formerly: MCOM 293P.

MCOM 250 Video Editing 3.0; 3 cr.
This course is an introduction to the field of digital and video editing, including the history and overview of analog and digital video. The course explores a variety of digital video career options, industry trends and the practical application of non-linear video editing. Students will learn how to manage data efficiently, how to manage a variety of data formats and will work hands-on with Final Cut Pro 10 or Premiere Pro CC on a variety of editing projects, from simple sequences to branded content, music videos and parallel editing of fiction scenes. Pre/corequisite: ENGL 203. Occasionally.

MCOM 251 Photojournalism 3.0; 3 cr.
This course is for students who have mastered basic photography skills and are familiar with the history of photojournalism. Students will learn about the ethics of photojournalism and explore critical issues in the field today. In addition to photojournalism, the class will cover the basics of documentary video shooting and the related fields of documentary photography and street photography. Pre/corequisite: ENGL 203. Occasionally.

MCOM 252 Digital Media Practices 3.0; 3 cr.
This course is about the study and production of digital media on video and audio streaming platforms. The course will focus on increasingly popular media phenomena that are being produced independently and around the globe. Students will study, analyze, critique and produce one of these new media forms. Pre/corequisite: ENGL 203. Occasionally.

MCOM 253 Social Media Strategies 3.0; 3 cr.
This course aims to expand familiarity of theories and methods that explore the interrelationship between social media and society, how each is shaped by and in turn shapes the other. Students will critically explore the role of social media in contemporary society, and then engage with planning and implementing social media campaigns including content creation, seeding and promotion. Pre/corequisite: ENG 203. Occasionally.

MCOM 254 Sound Editing 3.0; 3 cr.
A hands-on approach to the art and technique of sound, from production through post production. During this course students will learn not only the fundamentals of sound but more importantly, the creative use of sound in the film and television industries. All the core aspects of film sound will be covered from production sound, dialogue, ADR, sound effects, sound design, foley, music/score and mixing. Students will learn how to implement all the core aspects/layers of sound in order to heighten and propel narrative in visual story telling.

MCOM 290 Special Topics Seminar 3.0; 3 cr.
MCOM faculty or visiting professors and recognized scholars might be invited to offer seminars to explore relevant dimensions of their research in progress. May be repeated for credit. Pre/corequisite: ENGL 203. Occasionally.

MCOM 291 Special Topics (Humanities) 3.0; 3 cr.
A humanities course that provides a general overview of an area in media studies that is not normally covered by the department's offerings. May be repeated for credit. Pre/corequisite: ENGL 203. Occasionally.

MCOM 292 Special Topics (Social Sciences) 3.0; 3 cr.
A social sciences course that provides a general overview of an area in media studies that is not normally covered by the department's offerings. May be repeated for credit. Pre/corequisite: ENGL 203. Occasionally.

MCOM 293 Special Topics (Practice-based elective - List B) 3.0, 3 cr.
A practice-based course that addresses an area in media studies that is not normally covered by the department's offerings. May be repeated for credit. Pre/corequisite: ENGL 203. Occasionally.

MCOM 294 Media Brown Bag 3.0; 3 cr.
The Media Brown Bag course consists of a series of seminars presented by leading media researchers and practitioners from local and international media initiatives, broadcasters, print media, and advertising agencies. The aim of the seminar is to allow students to have first-hand accounts of working in the media industry, to engage in discussion with prominent media practitioners, and to allow students to discover potential career paths in media. Pre/corequisite: ENGL 203. Every term.

MCOM 296 Internship 0 cr.
A summer period of guided work experience supervised by the MCOM Internships and Workshops Coordinator and designed to acquaint students with a specific media/communication profession and help them acquire core values and basic skills necessary for finding future work and succeeding in that profession. Prerequisite: MCOM 294. Every term.

MCOM 299 Directed Study 3–6 cr.
A tutorial course offered to MCOM students with a GPA of A- or above in their major at the beginning of their senior year. This tutorial consists of independent research, original creative compositions, or directed reading, and includes the presentation of a report, project, or thesis on the work. Students with GPA lower than A- may be admitted to directed study at the discretion of the department. Pre/corequisite: ENGL 203. Occasionally.

39 Credits in MCOM

Modes of Analysis	Understanding Communication - English and Arabic(9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (Min. 39+3)	Understanding the World, Quantitative Reasoning (9:3/6+3/6)	Societies and Individuals outside the major (3)	Community Engaged Learning (3),
Lecture Courses (9+12 +42+ 9+3)	Required Arabic course (3) Required English courses: ENGL 203(3), 204(3)	Required credits in the Cultures and Histories: 9 credits including History of Ideas and 3 credits Human Values	Required (15): MCOM 201(3), 203(3), 204(3), 294 (3), 296(0) MCOM 210 (or PSPA 203 or STAT 203 (3) Electives (15) From MCOM 202, 205, 206, 207, 208, 215-239, 261- 292, 299; (9) electives from MCOM 240-259, MCOM 293, or ARAB 223) (3) SOAN 237	Required 6 Understanding the world courses. Required 3 credits CMPS 207	Required 3 credits	Required course (3)

Minors in Sociology, Anthropology, and Media Studies

Anthropology: One core course (SOAN 203 or SOAN 212) and 4 electives from the following: SOAN 203, SOAN 212, SOAN 215-218, SOAN 220–227, SOAN 236, SOAN 237, SOAN 250- 252, and SOAN 290 (if selected topic is in anthropology).

Media and Communication: Two requirements from the following: MCOM 201, MCOM 202, MCOM 203 or MCOM 204. Two List A electives from: MCOM 205, MCOM 206, MCOM 215 to MCOM 239, MCOM 290 - MCOM 292. One List B elective from MCOM 240 to MCOM 259, MCOM 293.

Film and Visual Culture: Two of the following core courses (ENGL 219, MCOM 206, MCOM 222), two electives from the following: ENGL 241A, ENGL 257 (A….Z), MCOM 219, MCOM 220, MCOM 221, MCOM 223, SOAN 236, SOAN 250, or other classes/ special topics courses approved by the coordinator of the minor program, and one elective from the following: ENGL 239, ENGL 254A, MCOM 246 or special topics courses approved by the coordinator of the minor program.

Reporting in the Digital Age: Three core courses (MCOM 226, MCOM 240 and MCOM 246), and two additional electives from the following: MCOM 215, MCOM 244 (a to z), MCOM 247, MCOM 250, MCOM 251 and any new or related special topics courses as approved by the program.

Sociology: SOAN 201, SOAN 213, SOAN 237, plus two electives from the following: SOAN 210, SOAN 220, SOAN 222, SOAN 223, SOAN 224, SOAN 225, SOAN 232, SOAN 240–242, SOAN 245 and SOAN 290 (if selected topic in sociology). Students who take SOAN 101 as freshmen should take SOAN 213, SOAN 237, and three of the electives listed above.

Human Rights and Transitional Justice: The requirements are: SOAN 245, SOAN 240 or PSPA 235, and three electives from the following: SOAN 221, MCOM 216, MCOM 217, MCOM 221, MCOM 247 , SOAN 230, SOAN 232, PSYC 212, PHIL 216, PHIL 252, PSPA 222, PSPA 232, or any special topics course in SOAN, PSYC, PHIL, PSPA, which will fit with the minor topic, upon the approval of the respective department chair and the coordinator of the minor program. Students majoring in sociology-anthropology should take at least three courses other than SOAN courses.

The Anis Makdisi Program in Literature (AMPL)

Director	Jarrar, Maher
Advisory Committee	AbdelMegeed, Maha; Harb, Sirene; Jarrar, Maher; Makdisi, Saree (UCLA)

The Anis Makdisi Program in Literature (AMPL) was inaugurated in October 2002.

Objectives

The AMPL promotes and supports interdisciplinary dialogue and different approaches in the study of literature following the tradition initiated by Anis K. Makdisi. The aim of this program is to encourage and develop scholarly interest in the humanities in general and in literature in particular, and to foster intellectual exchange among members of different departments, students, and visiting scholars.

Activities

Program activities include:

- An annual Anis K. Makdisi memorial lecture by a leading scholar in literature or a noted author of poetry or prose. All lectures are published by the program.
- A series of seminars on various issues and topics in literature and cultural studies offered by local, regional, and international scholars, novelists, and artists. The primary aim of the seminars is to enrich the study and the teaching of literature at AUB by providing wide discussion forums.
- Informal gatherings (lectures, discussions, colloquia) as a venue for scholarly debate for the academic community in Beirut.

Scholarships

The program offers two scholarships every year:

- The Anis K. Makdisi Graduate Fellowship to support graduate studies in literature at AUB
- The Anis K. Makdisi Scholarship in Literature for undergraduate studies

Website: http://www.aub.edu.lb/fas/ampl/Pages/index.aspx

Center for Arab and Middle Eastern Studies (CAMES)

Director	Hanafi, Sari
Assistant Director	Saidi, Aliya R.
Lecturers	El Kahwaji, Chadi; Sultani Kanawaty, Rima
Instructors	Amer, Anis; Semaan, Rima
Middle Eastern Studies Steering Committee	Atwood, Blake Robert; Hanafi, Sari; Mejcher- Atassi, Sonja; Orfali, Bilal; Saidi, Aliya; Tell, Tariq; Kitlas, Peter
Islamic Studies Steering Committee	Hanafi, Sari; Haydar, Bashshar; Ismail, Ghena; Khodr, Hiba; Orfali, Bilal; Saidi, Aliya

The Center for Arab and Middle Eastern Studies (CAMES) is an interdepartmental, interdisciplinary unit that seeks to enhance the understanding of the Middle East and Islamic civilization and to encourage informed scholarship in all related academic disciplines. CAMES is committed to the study of the Arabic language and offers courses at all levels in coordination with the Department of Arabic and Near Eastern Languages, as well as seven-week intensive language courses in Modern Standard Arabic and Lebanese Colloquial Arabic in the summer.

CAMES offers MA programs in Middle Eastern and Islamic Studies (see Graduate Catalogue) and a select number of courses at the undergraduate level. To complement students' course work and to promote scholarship about the Middle East and Islamic civilization at AUB, the center also sponsors visiting lectures and conferences and holds occasional events, such as film showings and readings.

Course Descriptions

MEST 201 Introduction to the Middle East 3.0; 3 cr.
This course provides an introductory survey of the history, politics, political economy, international relations, and cultures of the contemporary Middle East.

MEST 210 Special Topics in Middle Eastern Studies 3.0; 3 cr.
Special Topics in Middle Eastern Studies.

MEST 240 Introduction to Lebanese Arabic 5.0; 3 cr.
This course is only for foreign speakers of Arabic. The course builds proficiency in Lebanese Arabic through the introduction of the grammatical features of the Lebanese dialect and the practice of interactive functional skills, including listening comprehension, conversation tasks, and vocabulary building. For undergraduate and graduate students. Consent of instructor required. Every term.

MEST 241 Intermediate Lebanese Arabic 5.0; 3 cr.
This course is only for foreign speakers of Arabic. Intermediate Lebanese Arabic is a continuation of MEST 240 Introduction to Lebanese Arabic. The course emphasizes the further development of conversational skills in Lebanese Arabic and therefore, targets primarily speaking and listening skills. Knowledge of the Arabic alphabet is required to join MEST 241. This course concentrates on increasing vocabulary and command of syntax enabling students to reach a higher level of fluency. For undergraduate and graduate students. Consent of instructor required. Prerequisite: MEST 240 or placement based on a placement interview. Every term.

MEST 242 Advanced Lebanese Arabic 3.0; 3 cr.
This course is the continuation of the sequence begun in MEST 241 (Intermediate Lebanese Arabic) and MEST 240 (Introduction to Lebanese Arabic). Like the preceding courses, it focuses on spoken rather than written Arabic and will therefore target primarily the oral/aural skills: speaking and listening. Knowledge of the Arabic alphabet is required to join MEST 242. The course is designed to meet the needs and expectations of non-native young adults and adults who are seeking to develop a comfortable level of proficiency in a variety of complicated communicative tasks and social situations. For undergraduate and graduate students. Consent of instructor required. Prerequisite: MEST 241 or placement based on a placement interview. Every term.

Intensive Summer Arabic Programs

Arabic Language and Culture Program

Modern Standard Arabic Courses

MEST 360 Elementary Arabic (Intensive) 6 cr.
This course is designed to introduce students who have no previous knowledge of Arabic to the Arabic language and culture within its Lebanese setting. It utilizes an integrated approach that teaches both Standard and Lebanese Arabic based on communicative tasks and contexts. The course will familiarize students with the cultures of various Arabic speaking countries, with an emphasis on Lebanese culture and society. By the end of the course, students will be able to speak and write simple connected sentences about themselves, their families and their immediate environment, and read and listen to short authentic texts. The course will use Alif Baa: Introduction to Arabic Letters and Sounds (3rd Edition) and part of Al-Kitaab fii Ta'allum al-'Arabiyya: Part One (3rd Edition). By the end of this course, students are expected to reach High Elementary proficiency in Arabic on the (ACTFL) scale. Annually.

MEST 361 High Elementary Arabic (Intensive) 6 cr.
This course is designed for students who have studied the equivalent of one semester of Arabic. It utilizes an integrated approach that teaches both Standard and Lebanese Arabic based on communicative tasks and contexts. The course will familiarize students with the cultures of various Arabic speaking countries, with an emphasis on Lebanese culture and society. Students who enroll at this level are expected to know the Arabic alphabet and have basic reading, writing and conversational skills. By the end of the course, students will be able to speak and write longer connected sentences about themselves, their families, their environment and other topics, and to read and listen to longer authentic texts. The course will use part of Al-Kitaab fii Ta'allum al-'Arabiyya: Part One (3rd Edition). By the end of the course, students are expected to reach Intermediate proficiency in Arabic following the ACTFL scale. Annually.

MEST 362 Intermediate Arabic (Intensive) 6 cr.
This course is designed for students who have studied the equivalent of two semesters of Arabic. It utilizes an integrated approach that teaches both Standard and Lebanese Arabic based on communicative tasks and contexts. The course will familiarize students with the cultures of various Arabic speaking countries, with an emphasis on Lebanese culture and society. The objectives of this course are to further develop students' language skills and strategies, expand active vocabulary in a wide variety of topics and settings, enhance knowledge of basic Arabic grammar, and further develop intercultural competence. The course will use part of Al-Kitaab fii Ta'allum al-'Arabiyya: Part One (3rd Edition) and part of Al-Kitaab fii Ta'allum al-'Arabiyya: Part Two (3rd Edition). By the end of the course, students are expected to reach Intermediate-Mid proficiency in Arabic following the ACTFL scale. Annually.

MEST 363 Intermediate Mid Arabic (Intensive) 6 cr.
This course is designed for students who have studied the equivalent of three semesters of Arabic. It utilizes an integrated approach that teaches both Standard and Lebanese Arabic based on communicative tasks and contexts. The course will familiarize students with the cultures of various Arabic speaking countries, with an emphasis on Lebanese culture and society. The course aims to further enhance students' proficiency in the various skills, expand their cultural knowledge, expand their vocabulary, and enhance their control of grammatical structures and pronunciation. Students will learn to give oral presentations and do a lengthy writing project. The course will use part of Al-Kitaab fii Ta'allum al-'Arabiyya: Part Two (3rd Edition). By the end of the course, students are expected to reach Intermediate-High proficiency in Arabic following the ACTFL scale. Annually.

MEST 364 Intermediate High Arabic (Intensive) 6 cr.
This course is designed for students who have studied the equivalent of four semesters of Arabic. It utilizes an integrated approach that teaches both Standard and Lebanese Arabic based on communicative tasks and contexts. The course will familiarize students with the cultures of various Arabic speaking countries, with an emphasis on Lebanese culture and society. The course aims to further enhance students' proficiency in the various skills, expand their cultural knowledge, expand their vocabulary, and enhance their control of complex grammatical structures and pronunciation. Students will be able to comprehend lengthy authentic listening material, give oral presentations, write extensive compositions, and read authentic Arabic texts for research purposes. The course will use part of Al-Kitaab fii Ta'allum al-'Arabiyya: Part Two (3rd Edition). By the end of the course, students are expected to reach Advanced proficiency in Arabic following the ACTFL scale. Annually.

MEST 365 Advanced Arabic (Intensive) 6 cr.
This course is designed for students who have studied the equivalent of five semesters of Arabic. It utilizes an integrated approach that teaches both Standard and Lebanese Arabic based on communicative tasks and contexts. The course will familiarize students with the cultures of various Arabic speaking countries, with an emphasis on Lebanese culture and society. It aims to enable students to reach higher levels of proficiency in all Arabic skills. Students will do readings on a variety of topics and genres, such as literature, language and the social sciences. They will engage in debates, give oral presentations and write short research papers. The course will use part of Al-Kitaab fii Ta'allum al-'Arabiyya: Part Three, to be supplemented by extra material as needed. By the end of the course, students are expected to reach Advanced-Mid proficiency in Arabic following the ACTFL scale. Annually.

MEST 366 Advanced-MidArabic (Intensive) 6 cr.
This course is designed for students who have studied the equivalent of six semesters of Arabic. It utilizes an integrated approach that teaches both Standard and Lebanese Arabic based on communicative tasks and contexts. The course will familiarize students with the cultures of various Arabic speaking countries, with an emphasis on Lebanese culture and society. Students will do readings in a variety of genres: novels, short stories, academic articles, lengthy newspaper articles, and selections from medieval texts. They will improve their listening skills through news broadcasts, documentaries, and television shows in both Standard and Lebanese Arabic. They will improve their oral skills by doing extended oral presentations in class. Special emphasis is placed on understanding the nuances of the language and the use of idiomatic expressions and rhetorical devices in all the language skills. The course will use part of Al-Kitaab fii Ta'allum al-'Arabiyya: Part Three, to be supplemented by extra material as needed. By the end of the course, students are expected to reach Advanced-High proficiency in Arabic following the ACTFL scale. Annually.

MEST 367 Advanced-High Arabic (Intensive) 6 cr.
This course is designed for students who have studied the equivalent of seven semesters of Arabic. It utilizes an integrated approach that teaches both Standard and Lebanese Arabic based on communicative tasks and contexts. The course will familiarize students with the cultures of various Arabic speaking countries, with an emphasis on Lebanese culture and society. This level focuses on extensive readings that cover a wide variety of genres including novels, short stories, academic articles, lengthy newspaper articles, and selections from medieval texts. Listening skills are enhanced through news broadcasts, documentaries, and television shows in both Standard and Lebanese Arabic. Oral skills are developed through extended presentations in class. Special emphasis is placed on understanding the nuances of the language and the use of idiomatic expressions and rhetorical devices in all the language skills. By the end of the course, students are expected to reach a near native proficiency in all the Arabic skills. The course will use Al-Kitaab fii Ta'allum al-'Arabiyya: Part Three, to be supplemented by extra material as needed. Annually.

Colloquial Lebanese Arabic Program

Lebanese Colloquial Arabic Courses

MEST 380 Introductory Lebanese Colloquial Arabic (Intensive) 9 cr.
This course is designed for students who have had little or no previous exposure to Arabic and would like to gain basic proficiency in Lebanese Arabic (LA). The course builds proficiency in LA through a communicative-based approach. Through video and text materials that deal with a wide variety of communicative functions and tasks and that are rich in cultural content, students will develop their speaking and listening skills in LA. In addition, they will be able to contextualize these skills in culturally-appropriate contexts and demonstrate their understanding of the diverse products, practices, and perspectives of Lebanese culture and society. The course will introduce students to the Arabic alphabet and to an extensive vo- cabulary and grammatical structures that will enable them to interact with speakers of LA in contexts related to the Novice and Intermediate levels of proficiency with ease and confidence. The course will focus on discussing topics of personal and public interest, describing and narrating personal experiences, delivering presentations, watching and analyzing TV programs, soap operas and films, and listening to songs. The course utilizes a wide variety of instructional materials developed by the CAMES Arabic teaching team. No prior knowledge of Arabic is required for the course. Annually.

MEST 382 Intermediate Lebanese Colloquial Arabic (Intensive) 9 cr.
This course is designed for students who already have some knowledge of Standard Arabic and/or Lebanese Arabic (LA) but want to devote more attention to developing higher level of proficiency in LA. The program provides students with the opportunity to improve their Lebanese colloquial Arabic skills through a wide variety of activities, including discussing topics of personal and public interest, describing and narrating in detail, holding conversations and debates, stating and supporting opinions, delivering presentations, watching and analyzing TV programs, soap operas and films, and listening to songs and music. In addition, the program helps students develop familiarity with and understanding of the diverse products, practices, and perspectives of Lebanese culture and society. The program utilizes a wide variety of instructional materials developed by the CAMES Arabic teaching team. The prerequisite for this program is one year (two terms or the equivalent) of Arabic study. To ensure proper placement in the program, a Skype oral interview is required of all applicants. Annually.

MEST 384 Advanced Lebanese Colloquial Arabic 9 cr.
The Advanced Lebanese Colloquial Arabic class enables students to further develop their speaking and listening skills in Lebanese Arabic with special attention to expanding their knowledge of Lebanese culture. Students in the course are exposed to a variety of historical, social, economic, touristic, and artistic topics related to Lebanese Arabic language and culture. The class enhances students' listening skills by exposing them to different uses of the Lebanese dialect in authentic frames such as news reports, television and Internet series. Conversation skills are developed by encouraging students to speak in a participatory manner during the extensive discussions of the materials in class, with emphasis on pronunciation and speaking the Lebanese dialect properly. The class encourages students to use the general vocabulary used in daily life situations in a precise and smooth manner, and enriches their linguistic reserve by exposing them to a large amount of vocabulary and expressions related to the historical, social, economic, touristic, media, and artistic fields. This enables students to use more complex and advanced structures and to master the use of certain verbs and words of recurrent use in the Lebanese dialect that have multiple meanings. The class demonstrates the similarities and differences between Lebanese Arabic and Standard Arabic, allowing students to learn how to move between the two with ease and helping them to understand the sociolinguistic contexts in which these Arabic varieties are used. Annually.

The Prince Alwaleed Bin Talal Bin Abdulaziz Alsaud Center for American Studies and Research (CASAR)

Director	Scheid, Kirsten
Professor	Myers, Robert
Program Coordinator	Baghdadi, Rana
CASAR AUB Advisory Committee	Harb, Sirene; Ketsemanian, Varak; Sanazaro, Marie-Claire; Touma, Jihad; Makdisi, Karim

The Center for American Studies and Research (CASAR) aims to promote dialogue about issues in American studies through research, teaching, and outreach. The center offers a minor in American studies and sponsors conferences, seminars, and public lectures. It also promotes research activities, particularly in the area of American encounters with the Middle East.

The Center for American Studies and Research (CASAR) works to establish and maintain a world-class locus of activity and exchange of ideas for an interdisciplinary community of researchers, teachers, students and others in the Middle East interested in building further understanding of American institutions and practices (political, social, economic, cultural) and the complex contextual realities in which these institutions and practices have developed and currently exist.

Minor in American Studies

American studies is an interdisciplinary field that critically examines the connections among American literature, arts, culture, religions, economics and politics. The Center for American Studies and Research (CASAR) has a particular interest in encounters between the United States and the Middle East.

Interested students can declare a minor in American studies by going to the “Minors” part of the FAS website.

Requirements for a minor in American Studies, 15 credits (minimum):

- AMST 215 Introduction to American Studies (3 credits)
- One other AMST course (3 credits)
- Three elective courses from other departments with American Studies content or relevance (9 credits total)

Qualifying Course Options

Core Course (required): AMST 215 Introduction to American Studies

American Studies Elective (any one required): AMST 220 Shock of Modernity in America; AMST 230 Cultural Geography of North American; AMST 240 America in the Middle East/ Middle East in America; AMST 265/266 Special Topics in American Society (carries Social Science credit); AMST 275/276 Special Topics in American Humanities (carries humanities credit)

Electives from other departments (at least three courses required):

- ARCH 023 Form, Event, Ideology: The American City as Case Study
- ENGL 209 Survey of American Literature
- ENGL 216 Drama
- ENGL 219 Film as Text
- ENGL 222 Literature and Cultural Studies
- ENGL 224 Early American Literature
- ENGL 225 Modern American Literature
- ENGL 226 Contemporary American Literature
- ENGL 241 Transnational Literatures
- HIST 200 Introduction to the History of the United States
- HIST 271 Race, Class, Gender: Introduction to American Social History
- HIST 272 Economic History of the United States
- HIST 273 The United States and the Middle East
- HIST 274 The United States in the Twentieth Century
- HIST 278/279 Special Topics in United States History
- MCOM 201 Intro to Media Studies
- MCOM 204 From Telegraph to Twitter: Media History (formerly 263)
- MCOM 219 Media Depictions of Society (formerly 262)
- MCOM 222 Introduction to Visual Culture Studies
- MCOM 290E On Television
- MEST 315M Making of the Modern Middle East
- PHIL 263A Contemporary Philosophical Movements: American Pragmatism and Its Critics
- PSPA 220 Globalization and Culture
- PSPA 237 The Middle East in International Politics since WWI
- PSPA 251 Politics and Government: United States of America
- PSPA 293 D Senior Seminar in International Politics: US in the Middle East
- SOAN 215 Anthropology of America

In addition, new courses including special topics courses in other departments and programs may occasionally be related to American studies. Students can petition to apply for such a course towards the requirements for the minor, which must be approved first by the CASAR director and then by the FAS Curriculum Committee.

Course Descriptions

AMST 215 Introduction to American Studies 3.0; 3 cr.
This course begins with the question: What is America? Its approach is to explore the complex encounters that have shaped the cultures of the United States and the Americas. Equivalent to HIST 278A. Annually.

AMST 220 Shock of Modernity in America 3.0; 3 cr.
Examines how Americans dealt with the first onslaught of commercial capitalism, industrial technology, and new modes of communication in the decades before the Civil War. A surge of nationalism and social tension fueled an orgy of expansion that created a continental super-state. The wrenching economic, social, and cultural changes of this era continue to resonate in the United States and in societies confronting modernity today. Annually.

AMST 230 Cultural Geography of North America 3.0; 3 cr.
An examination of the geography of cultures in the United States and Canada through multiple frameworks including regions, languages, religions, ethnicity, and gender. This course explores the roots and implications of these cultural patterns and considers cultural dynamics at several scales: the household, the city, the region, the nation, and the continent. It also investigates the economic and industrial evolution of cities and regions, the dynamics of public versus private space, the effects of mobility, the dynamics of border zones, diasporic communities, and globalization. Equivalent to HIST 279A. Annually.

AMST 240 America in the Middle East/The Middle East in America 3.0; 3 cr.
This course historicizes contemporary United States military and economic involvement in the Middle East by considering the cultural history of US/Middle East relations from the mid-19th century to the present. An emergent area of transnational study within American Studies, studies of US/Middle East cultural relations are focused on policy, economic, cultural, and affective dimensions. Students will engage the field by analyzing primary documents, reading literature, and viewing visual and popular culture. Annually.

AMST 265/266 Special Topics in American Society 3.0; 3 cr.
A term-specific interdisciplinary course focusing on some aspect of American society. May be repeated for credit. This course carries social science credit. Occasionally.

AMST 275/276 Special Topics in American Humanities 3.0; 3 cr.
A term-specific interdisciplinary course focusing on some aspect of American arts. May be repeated for credit. This course carries humanities credit. Occasionally.

AMST 298 Tutorial in American Society 3.0; 3 cr.
A tutorial course offered to seniors completing the minor in American Studies who have an overall GPA of at least 3.3 and at least 3.7 in the minor courses. This tutorial consists of independent research or directed reading in some aspect of American society, and includes the preparation of a report or thesis on the work. This course can be taken for 3 or 6 credits. This course carries social science credit. Offered on request.

AMST 299 Tutorial in American Humanities 3.0; 3 cr.
A tutorial course offered to seniors completing the minor in American Studies who have an overall GPA of at least 3.3 and at least 3.7 in the minor courses. This tutorial consists of independent research or directed reading in some aspect of American arts and includes the preparation of a report or thesis on the work. This course can be taken for 3 or 6 credits. Offered on request.

Center for Language Research and Teaching (CeLRT)

Director	Shaaban, Kassim A.
Professors	Choueiri, Lina G.; Ghaith, Ghazi M.; Shaaban, Kassim A.
Associate Professors	Hanafi, Sari; Orfali, Bilal W.
Assistant Professors	Allen, Ira J.; Avant, Doyle R.; Kelly, Niamh; Majed, Rima; Nish, Jennifer M.; Vermy, A. Michael; Zimmerman, Erin

CeLRT is currently inactive. For more information, please contact the center director.

The proposed functions of the center are the following:

- Providing language practitioners with professional support through workshops, panel discussions, forums, seminars, and discussions.
- Establishing connections with professional organizations and supporting their goals and mission.
- Holding a biannual conference on different topics in theoretical and applied linguistics and related fields (sociolinguistics, language acquisition, pragmatics, and mass communication).
- Publishing an electronic journal that addresses generic language issues as well as issues specific to the language situation and language education in the Middle East region.
- Working on offering new postgraduate degrees in language related areas such as Creative Writing, Rhetoric and Composition, and Translation.
- Offering consultation services in language-related areas.
- Hosting visiting scholars and post-doctoral fellows.
- Working on the establishment of new language-based interdisciplinary graduate programs at AUB.
- Engaging in research in theoretical and applied linguistics and in language teaching and language learning.

Science and Mathematics Education Center (SMEC)

Director	El Mouhayar, Rabih
Professors	Amin, Tamer; BouJaoude, Saouma; Khishfe, Rola
Associate Professor	El Mouhayar, Rabih
Lecturer	Osman, Enja

The overall mission of the Science and Mathematics Education Center is four-fold:

- To conduct and support quality research on the teaching and learning of science and mathematics at the pre-school, elementary, and secondary levels.
- To contribute to the development of quality science and mathematics teaching and research professionals.
- To design and provide ongoing professional development for science and mathematics teachers in Lebanon and abroad.
- To affect a positive influence on the quality and status of school science and mathematics education locally, regionally, and internationally.

The center currently accomplishes its mission through the performance of a variety of functions including, but not limited to:

- Designing and teaching science and mathematics education courses for pre-service teachers and master's level graduate students in cooperation with the Department of Education.
- Designing and conducting research on teaching, learning, and teacher professional development in science and mathematics.
- Designing and developing instructional materials in science and mathematics for students and teachers.
- Maintaining a current science and mathematics curriculum library for use by pre-service and in-service teaching professionals.
- Providing outreach consultation in science and mathematics education for schools, institutions, and governments regarding curriculum design, the design of instructional environments, methods of evaluation, and professional development for teachers.
- Providing in-service professional development for teachers and subject-matter coordinators through special courses, workshops, institutes, conferences, or through participation in professional development initiatives sponsored by AUB or other institutions and organizations.

University Preparatory Program (UPP)

Director of UPP	Harkouss, Samar
Lecturers	Harkouss, Samar; Rahme, Joseph; Ramadan Jreidini, Najwa
Instructors	Almekkawi, Rola; El-Harake, Rima; Faraj, Rochana; Farhat, Zeina; Hamzeh, Sahar; Peltikian, Katia

The University Preparatory Program (UPP) is a unit within the Faculty of Arts and Sciences. Its main objective is to address the specific English language needs of students who have completed high school with strong academic records but are unprepared to function in all-English curricula at the university level. The program also aims to develop the science and mathematics content competencies and computer skills of its students, as well as develop the requisite academic literacy, study skills, and information library skills needed for success in university studies.

UPP is a one-year program consisting of 25 contact hours per week. Its curriculum follows an integrated approach to the teaching of language skills (listening, speaking, reading, and writing) and a student-centered approach to the teaching of science and mathematics. Furthermore, the curriculum incorporates study skills, pronunciation training, and conversational English, depending on individual needs. The development of computer literacy, preparation for the critical reading part of the SAT reasoning test, and cultural orientation are also emphasized.

Applicants must have completed at least twelve years of schooling, or the equivalent, before beginning the program and must submit a UPP application with all supporting material. Completed applications are reviewed and students are notified of their acceptance or non-acceptance to UPP in due course.

Accepted applicants to UPP are assigned to a learning level based on their performance on a special English language test. This test measures the English language proficiency of learners and is used to place students into three proficiency levels. Other diagnostic tests specifically prepared for the program are used to determine the mastery level of various language skills and elements (listening, speaking, reading, writing, grammar, and vocabulary). In addition, applicants receive developmentally appropriate instruction based on their performance on science, math, and computer skills tests.

Promotion to a higher level is not automatic; learners must demonstrate that they have successfully met the instructional objectives set for the current level. The placement test may be administered again to serve as an indicator of the progress made by the learners over the period of one term. Successful completion of the program and admission to sophomore standing is determined on the basis of passing the UPP sequence of courses and attaining the scores on the TOEFL and SAT tests required for admission to regular AUB programs.

Level 1 students must score a minimum of **60 percent** on their final average to be promoted to level 2.

Level 2 students must score a minimum of **65 percent** on their final average to be promoted to level 3.

Level 3 students placed in this level must receive a final average of 70 percent to be promoted to the Freshman or Sophomore classes. Students promoted from Level 2 must score a minimum cumulative average of 70 percent to be promoted.

Students wishing to enter the university with freshman standing must successfully complete the UPP sequence of courses. Furthermore, all UPP applicants to AUB must present a letter of good performance from the Program Director. They should also maintain a good attendance record. Students who miss more than one-fifth of the sessions of any section in the first ten weeks of the term (five weeks in the case of the summer term) will be dropped from the program.

It is important to stress that students are required to complete the program, even if they attain the needed TOEFL and SAT scores before the term is finished. Failing to complete the program jeopardizes students' chances of admission to AUB. The UPP also offers an Intensive English Summer Course for newly admitted graduate students coming from outside AUB who have not fulfilled the English Language Requirement. This course (a minimum of 20 contact hours per week) aims at enabling these students to function effectively in all-English curricula.

Course Descriptions

UPEN 001 0 cr.
This course is designed for beginning UPP students who have little or no knowledge of English. It provides learners with basic listening, speaking, reading, and writing skills, enabling them to understand and take part in English conversations, in addition to reading simple stories and responding to them in writing.

UPEN 002 0 cr.
This course is designed for low-intermediate UPP students who possess limited language skills but can initiate conversations and read and/or write a paragraph or several paragraphs. Word-building and study skills, in addition to more sophisticated reading and writing skills, are introduced to enable these college-bound students to cope with the tasks required of them in the future. There is also emphasis on orientation to the American model of education, and to living in a diverse ethnic and cultural environment.

UPEN 003 0 cr.
This course is designed for high intermediate UPP students who can communicate well both in conversation and in writing. It serves as a transition from intensive English courses to regular academic study. Students read various texts, give oral presentations, receive cultural orientation, and practice their academic writing and basic research skills.

UPEN 004 SAT Writing and Critical Reading 0 cr.
This course prepares students for the writing and critical reading sections of the Scholastic Aptitude Test (SAT Reasoning) required of all undergraduate students joining AUB. Emphasis is placed on critical reading skills, college writing skills, vocabulary building, and standardized test-taking strategies.

UPMA 001 SAT Math 0 cr.
This course prepares students for the math section of the Scholastic Aptitude Test (SAT Reasoning) required of all undergraduate students joining AUB. Emphasis is placed on mathematical terminology, arithmetic skills and concepts, word problems, geometric concepts and reasoning, in addition to standardized test-taking strategies.

UPMA 002 0 cr.
This course reviews the fundamental operations with algebraic expressions (exponents, radicals, logarithms, factoring, algebraic quotients, absolute value). It introduces elementary functions with graph representations: linear, quadratic, polynomial, rational, exponential and logarithmic. It includes methods to solve systems of linear equations and inequalities, matrices, sequences, and series.

UPMA 003 0 cr.
This course introduces the principles of permutations, combinations and other counting principles, elementary notions of probability and statistics. The last part of the course emphasizes fundamental notions in calculus: limits and continuity, differentiation, indefinite and definite integrals, and the fundamental theorem of integration calculus.

UPSC 001 Science 0 cr.
This course is a science literacy course that introduces students to major concepts in the physical and life sciences and their applications in everyday life. It emphasizes in-depth conceptual understanding of science concepts by using a variety of teaching approaches. Additionally, the course introduces students to scientific terminology in English to prepare students to take science courses at the university level.

UPIT 001 Information Technology 0 cr.
This course is a computer literacy course that is an introduction to micro-computer applications for Windows. It includes an overview of Windows, Microsoft Word, Excel, PowerPoint and essential email and Internet skills.

UPHU 001 Humanities 0 cr.
This course aims to introduce students of UPP to the humanities, through an examination of how the human has attempted to understand and express itself, its values, its condition, and its history. This will be addressed through a close encounter with selections ranging in time and space (from the ancient classics, through the medieval cultures, to the 19th and 20th centuries), and from a varied array of expressions in the humanities (literature, philosophy, and various forms of the arts).

The Zaki Nassif Program for Music (ZNPM)

Chairperson	Nassif, Nabil

The Zaki Nassif Program for Music was inaugurated in December 2004.

Objectives

The program aims to preserve and promote the musical heritage of Zaki Nassif and to foster excellence in the teaching of music by contributing to its advancement through a variety of activities that include:

- Organizing competitions, concerts, conferences, and seminars.
- Inviting professional musicians and academics to the university.
- Awarding prizes, scholarships, and fellowships to students in the name of Zaki Nassif.
- Reinstating and sustaining courses and programs in musical studies and practice at AUB, in both the Continuing Education Center and the department of Fine Arts and Arts History.
- Recruiting quality musicians, and scholars to initiate and run those music courses and programs.

The Center for Arts and Humanities (Mellon Grant)

Director	Mejcher-Atassi, Sonja
Program Manager	Bassil, Rita
Steering Committee	Abu Saada, Nadi; Frangie, Samer; Mourad, Sara; Sadek, Walid; Scheid, Kirsten

The Center for Arts and Humanities (CAH) at the American University of Beirut is a space for interdisciplinary research and teaching, which fosters new creative and scholarly initiatives. Drawing on its location in the Arab region, CAH is dedicated to nurturing and building academic and cultural exchange and collaboration between academics, writers, artists, and students. Through participating in the construction of a vibrant intellectual community that crosses disciplinary as well as geographical borders, CAH foregrounds the crucial importance of the arts and humanities for the imagination of more equitable, just and sustainable futures, at a time of increasingly narrowing horizons.

CAH is a member of the Consortium of Humanities Centers and Institutes (CHCI) and the Global Humanities Network (GHN).

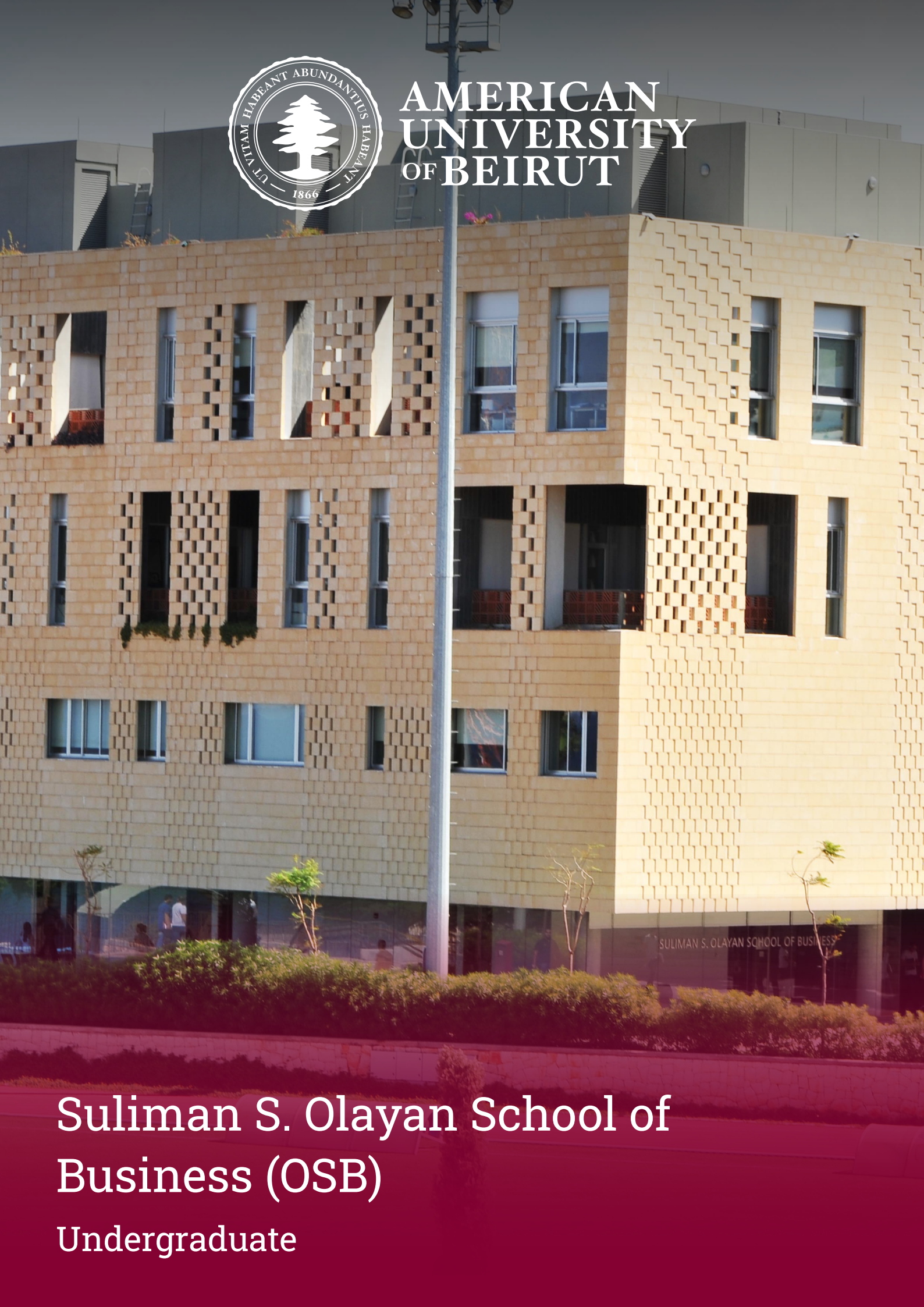
CAH has organized – and co-organized in collaboration with other academic units across AUB and beyond – numerous academic events, ranging from international conferences to workshops, lectures, book talks, literary salons, exhibitions, performances, and film screenings. CAH is also developing training programs and opportunities for academic development in the arts and humanities.

Mission

The Center for Arts and Humanities (CAH) at the American University of Beirut aims to foster interdisciplinary exchange and collaboration across the arts and humanities as well as with other fields of knowledge, be they housed in the social or natural sciences, engineering and architecture, medicine, or law. It advances a nuanced understanding of the fields of artistic and humanistic inquiry and the creative and critical roles they have played across time and space as well as in the specific communities and societies we live in across the Arab region today.

CAH's mission has three core components:

- Research, promoting interdisciplinary projects across the arts and humanities.
- Teaching, supporting collaboration and innovation in arts and humanities curricula.
- Outreach, engaging colleagues and students in other academic fields, cultural practitioners, political activists, and broader publics both locally and globally.



Suliman S. Olayan School of Business (OSB)

Undergraduate

Officers of the School

Fadlo Khuri	President of the University
Zaher Dawy	Provost
Yusuf Sidani	Dean
Fouad Zablith	Associate Dean for Online Learning and Program Development
Lama Moussawi	Associate Dean for Research and Faculty Development
Victor Araman	Associate Dean for Programs
Bradley Jon Tucker	Vice-Provost and Registrar
Antoine Sabbagh	Director of Admissions
Fida Afiouni	Associate Provost
Lokman Meho	University Librarian

Professional Administrators

Abir Sinno	Director of Strategic Initiatives and Continuous Improvement
Amal Shbaro	Administrative Assistant to the Dean
Dania El-Ashi	Senior Service Delivery Manager
David Matta	Director of Career Management Services
Layan Sarkis	Academic Affairs Manager
Mohammad Hasan Senan	Accreditation Officer
Nada Khalidy Kouzi	Facilities and Events Manager
Yara Haddad	Digital Media Manager
Zeina Succar	Financial Officer

Program Directors and Coordinators

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Assem Safieddine	Director of the MFIN Program
Hagop Panossian	Director of the International Case Competition Program
Ibrahim Jamali	Director of the Executive MBA Program
Leila Khauli	Director of the MBA Program
Maya El Helou	Director of Graduate Programs
Said Elfakhani	Interim Director of Executive Education
Wassim Dbouk	Director of the Investment Management Program
Yasmeen Makarem	Director of the MHRM Program
Zeina Harfoush Nsouli	Executive Director of the Undergraduate Program

Centers and Initiatives Directors

Bijan Azad	Director of the Darwazah Center for Innovation Management and Entrepreneurship
Mostafa Harakeh	Research Director of the Rami Fouad Makhzoumi Initiative in Corporate Governance
Nada Khaddage	Director of the Center for Women in Business
Nada Naufal	Director of the Rami Fouad Makhzoumi Initiative in Corporate Governance
Neveen Ahmed	Director of the Business Practice and Policy Initiative
Randa Salamoun	Director of the Case Hub Initiative

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Razan Tabbara	Vice President & Chief Operating Officer | J.P. Morgan Saudi Arabia
Ricardo Hosri	Chief Executive Officer | Sacotel – Fernand Hosri Group
Rima Assi	Senior Partner | McKinsey & Company
Salman Al Jishi	Founder, Owner, President, and Chairman | Salman Group.
Samia Bouazza	Group Chief Executive Officer and Managing Director | Multiply Group
Tarek Daouk	Chief Executive Officer | Dentsu Aegis Network

The Finance, Accounting, and Managerial Economics Track

Convener	Ismail, Ahmad
Professors	Elfakhani, Said; Safieddine, Assem
Associate Professors	Dagher, Jihad; Dbouk, Wassim; Harakeh, Mostafa; Ismail, Ahmad; Jamali, Ibrahim; Mazboudi, Mohamad
Assistant Professors	Abou Tanos, Barbara; Faour, Mohamad
Visiting Assistant Professor	Ahmed, Neveen
Senior Lecturers	Azzam, Henry; Ghanem, Abdel Jalil; Hamade, Malak; Hout, Bassima; Tannir-Fawaz, Lina; Uwaydah-Mardini, Rania

The Management, Marketing, and Entrepreneurship Track

Convener	Afiouni, Fida
Professors	Afiouni, Fida; Sidani, Yusuf
Associate Professor	Samara, Georges
Assistant Professors	Abi Aad, Amine; Al Chami, Rola; Centeno, Alejandro; Desjardins, Camille; El Awad, Ziad; El Kebbi, Amr; Itani, Mona; Joseph, Jay; Makarem, Yasmeen; Merhabi, Mohamad-Amir; Saade, Nathalie
Senior Lecturers	Dimechkie, Riad; Gerges, Roula; Khauli, Leila; Kfoury, Jessy; Panossian, Hagop; Wahbi, Marwan
Research Fellow	Cooper, Holly
Instructor	Kfouri, Michael

The Business Information and Decision Systems Track

Convener	Fleszar, Krzysztof
Professors	Araman, Victor; Azad, Bijan; Fleszar, Krzysztof; Moussawi, Lama; Osman, Ibrahim
Associate Professors	Bou Hamad, Imad; Nasr, Walid; Zablith, Fouad
Assistant Professors	Khreich, Wael; Salamoun, Randa
Visiting Assistant Professors	Abou Mjahed, Mirna; Taleb, Sirine
Senior Lecturers	El Hajj, Ahmad; Geutcherian, Rita
Lecturers	Jammal, Mahdi; Majdalani, Elie

Historical Background

Business education at AUB started in 1900 and was provided either by a department or by a semi-autonomous school under the university's Faculty of Arts and Sciences for approximately one hundred years. In celebration of the hundred-year anniversary of offering business programs, AUB established an independent school of business (later named the Suliman S. Olayan School of Business, OSB) in September 2000 as the sixth faculty of the university.

To date, AUB has graduated over 15,000 students from its undergraduate and graduate business programs. Since its formal establishment as a distinct school, OSB has grown its full-time faculty complement from 13 members in the academic year 2000-01 to 55 members today. It now graduates approximately 300 students from its undergraduate program and more than 200 students from its graduate programs.

OSB currently offers six degree programs which include an executive master of business administration (herein referred to as the executive MBA), a master of business administration, in person and online, (herein referred to as the MBA and OMBA), a master in finance (herein referred to as the MFIN), a master of arts in human resource management (herein referred to as the MHRM), a master of science in business analytics (herein referred to as the MSBA), and a bachelor of business administration (herein referred to as the BBA).

The First AUB Faculty to be Named

In June 2003, the AUB School of Business was named the Suliman S. Olayan School of Business (herein referred to as OSB) in honor of the late international Saudi businessman and AUB trustee whose family has always been a major supporter of AUB.

This watershed event triggered a series of major developments intended to broaden and deepen the delivery of quality undergraduate and graduate business programs at AUB. An entirely new curriculum was introduced for the BBA and MBA degrees in fall 2001. Both degrees were redesigned to follow leading trends in international business education. In spring 2004, OSB launched the executive MBA program in response to the professional development needs of senior corporate leaders in the region. In 2012, OSB introduced a specialized master in finance and a specialized master of arts in human resource management, and in 2017 introduced a master of science in business analytics, to its suite of graduate degree program offerings as part of its strategy to better serve the region, increase its graduate enrollment and further enhance AUB's global brand as the regional business education leader.

Accreditation and Recognitions

The degree programs of OSB are accredited by the Association to Advance Collegiate Schools of Business (AACSB International).

Requiring rigorous quality audits and adherence to best academic practices, AACSB accreditation, which is attained by fewer than 6 percent of business schools worldwide, is the international quality assurance standard for business education programs. Initial accreditation was achieved in 2009, and as per AACSB re-accreditation guidelines, OSB was re-accredited in 2014, 2019 and more recently in 2025, marking 16 years of AACSB accreditation.

The Suliman S. Olayan School of Business (OSB) earned the prestigious Business School Impact System (BSIS) label in 2024 for a period of three years, recognizing its exceptional contributions in finance, education, business development, intellectual output, regional integration, societal impact, and reputation enhancement.

Mission

The mission of the Suliman S. Olayan School of Business is to enable world-class business research, learning and knowledge transfer from our authoritative anchor point within the MENA region.

Vision

The vision of Suliman S. Olayan School of Business is to transform business thinking in the MENA region.

Values - LEADERS

Lifelong Learning | We see business education as an enduring journey perpetually nurturing curiosity and fostering innovation. We aim to remain at the cutting edge of business thought and practice, embodying the belief that learning never ceases.

Empowerment | We inspire individuals to explore new horizons, innovate boldly, and take on leadership roles. We foster a culture where leaders are cultivated to drive change and make significant contributions.

Agility | Agility underscores our adaptability to rapidly changing business environments. We strive to remain proactive, flexible, and robust in strategy and action, embodying versatility in academic, research, and community engagement.

Diligence | Diligence drives us to continually refine our processes, enhance our programs, and achieve exceptional results with integrity and responsibility. We are passionate about preparing leaders who are deeply devoted to their craft and community.

Excellence | Excellence in teaching, research, and service inspires us to push boundaries, innovate tirelessly, and uphold the highest standards of quality, preparing future leaders for unrivaled success in the global marketplace.

Respect | Respect fosters an environment where dignity, diversity, and dialogue flourish. We are committed to honor the perspectives and contributions of all stakeholders, fostering a culture of psychological safety where everyone thrives.

Sustainability | We strive to integrate environmental stewardship, societal well-being, and economic prosperity into our curriculum, intellectual contributions, and operations. We aspire to develop leaders with the skills and passion to provide sustainable solutions for global challenges.

Ethics and Integrity at OSB

OSB is committed to the highest standards of academic integrity and expects its faculty and students to exhibit exemplary behavior in this regard. All business students are responsible for familiarizing themselves with and always abiding by the AUB policies, rules and regulations that define standards for academic integrity.

Organization and Governance

The Suliman S. Olayan School of Business (OSB) is managed by the dean, associate deans, track conveners, program directors, and the professional administrators of the school. Track conveners report directly to the dean of the school. The school is guided by the International Advisory Board, a board composed of accomplished thought leaders and trendsetters in business. It operates under a set of school bylaws available at the following web address: https://aub.policytech.eu/dotNet/documents/?docid=3020&app=pt&source=unspecified&public=true

The Suliman S. Olayan School of Business (OSB) is structured into the functional equivalent of multidisciplinary departments, referred to as tracks. While each track has its unique identity and designated faculty members, the track structure differs significantly from traditional departmental models. Tracks allow for:

- Multiple Faculty Membership: Faculty members can belong to more than one track.
- Cross-Disciplinary Synergy: Tracks encourage interdisciplinary collaboration.
- Faculty Cooperation: The structure promotes teamwork and shared initiatives.

OSB has three distinct tracks, each encompassing a cluster of related academic business disciplines, led by a track convener:

1. Finance, Accounting, and Managerial Economics (FAME):
   - Two Disciplines: Accounting and Finance
2. Management, Marketing, and Entrepreneurship (MME):
   - Three Disciplines: Management and Human Resource Management (which includes strategy, leadership, organizational behavior and human resource management), Marketing, and Entrepreneurship and Innovation
3. Business Information and Decision Systems (BIDS):
   - One Discipline: Business Information and Decision Systems (which includes operations management, information systems, and business analytics)

Undergraduate Program: BBA Program

OSB currently offers the bachelor of business administration (BBA).

Philosophy

The BBA program is for university entrants focused on translating their thinking and interests into career opportunities in business. The program combines business and arts and sciences in a rigorous learning environment to help students gain a holistic understanding of the social, cultural, and economic environment in which they operate. The curriculum's liberal arts-based operational focus is deeply grounded in analytics while emphasizing soft skill areas such as leadership, decision-making, and ethical reasoning.

Direct Admission

Students are admitted as sophomores to the BBA program. These students are normally admitted directly from secondary school into the sophomore class at OSB. For complete and detailed information regarding admission to the university, see the Admissions section of this catalogue. All direct admissions are decided by the university Unified Admissions Committee.

Transfers

As per OSB's bylaws, all transfer decisions are made by the school's Undergraduate Admissions Committee.

Transfer from the Freshman Class of the Faculty of Arts and Sciences

Eligibility conditions are:

- Successful completion of at least 26 freshman credits (advanced placement credits inclusive).
- A minimum cumulative GPA of 3.0.
- A minimum grade of B in one of the following courses: MATH 100, MATH 101, MATH 102, or MATH 203.

All final admission decisions depend on the overall quality of the eligible applicant pool and the number of available places for the term in question.

Transfer from Other Faculties at AUB

Non-OSB students at AUB, other than those from the freshman class of the Faculty of Arts and Sciences, may apply for a transfer to OSB in order to pursue a BBA degree. To be eligible for an internal transfer, applicants must:

- Have completed at least 24 sophomore credits (or 54 credits including freshman credits).
- Not be on probation.
- Have achieved a minimum cumulative GPA of 3.0.

Students with an overall GPA of less than 3.0 and have met the above conditions may be considered (through a petition at OSB) for an internal transfer, provided they have a minimum GPA of 3.0 in any 5 of the following courses: ACCT 210 (or ACCT 211), FINA 210 (or FINA 211), INFO 200, DCSN 200, MNGT 215, MKTG 210, ACCT 215, and BUSS 215.

All final admission decisions depend on the overall quality of the eligible applicant pool and the number of available places for the term in question.

It is important to note that for transfer purposes, late freshman students who have taken more than 30 credits but less than or equal to 45 credits are treated as freshman students (i.e., they must meet freshman transfer requirements).

Transfer from Outside AUB (Other Universities)

Students currently pursuing an undergraduate degree at another university in Lebanon or abroad may apply for transfer to the OSB sophomore or junior class. To be eligible for admission to AUB and to OSB's business program, the applicants must:

- Be transferring from an appropriately accredited university or institution of higher education recognized by AUB.
- Have completed at least 24 sophomore credits (or 54 credits inclusive of the freshman year).
- Have achieved a minimum overall cumulative average equivalent to the AUB GPA of 3.0; applicants should meet the Readiness for University Studies in English before registration.

All final admission decisions depend on the overall quality of the eligible applicant pool and the number of available places for the term in question.

It is important to note the following:

- Transfer of credit is considered only for courses completed in the five-year period preceding the proposed date of joining the BBA program.
- Students transferring to OSB from another institution will not be granted equivalency credits for core business courses. Core business courses are: ACCT 210, ACCT 215, BUSS 200, BUSS 211, BUSS 215, BUSS 239, BUSS 245, BUSS 249, DCSN 200, FINA 210, INFO 200, MKTG 210 and MNGT 215.
- The students are required to achieve a minimum grade of "B" in all eligible business courses for which transfer credit is sought.

The Undergraduate Student Academic Affairs and Curriculum Committee reserves the right to require the students to sit for an exemption test prior to the approval of transferred courses. An exemption test may be taken only once.

Business as a Second Degree

The OSB Undergraduate Admissions Committee evaluates all applications for the BBA as a second degree and makes recommendations to the dean. To be eligible for admission, students must have a first degree from an appropriately accredited institution of higher education recognized by AUB with a cumulative GPA of no less than 3.0 (or its equivalent).

All final admission decisions depend on the overall quality of the eligible applicant pool and the number of available places for the term in question.

Application process is available in the General University Academic Information section of the catalogue.

Dual Degree

Students may, upon approval of the concerned faculty, complete the requirements for a second degree while registered in another faculty at AUB. In such a case, students will be granted two degrees at the same time upon graduation. If tuition differs, students will pay the higher of the tuitions. To be eligible for a dual degree with OSB, the applicants must:

- Have completed at least 24 sophomore credits (or 54 credits including freshman credits).
- Not be on probation.
- Have completed all courses required for a minor in business: ACCT 210 (or ACCT 211), FINA 210 (or FINA 211), INFO 200, DCSN 200, MKTG 210, and MNGT 215.
- Achieved a minimum overall cumulative GPA of 3.0.

All final admission decisions depend on the overall quality of the eligible applicant pool and the number of available places for the term in question.

Students interested in a dual degree must submit a dual degree petition form through the Online Petition System.

Minors

Business as a Minor Field of Study

Students who wish to obtain a minor in business are required to:

- Complete a minimum of 18 credit hours in the following business courses: ACCT 210 (Financial Accounting 3 cr.) or ACCT 211 (Financial Accounting for Engineers, 3 cr.), DCSN 200 (Operations Management, 3 cr.), FINA 210 (Business Finance, 3 cr.) or FINA 211 (Introduction to Finance for Engineers, 3 cr.), INFO 200 (Foundations of Information Systems, 3 cr.), MKTG 210 (Principles of Marketing, 3 cr.) and MNGT 215 (Fundamentals of Management and Organizational Behavior, 3 cr.)
- Pass the required six courses (ACCT 210 or ACCT 211, FINA 210 or FINA 211, MNGT 215, MKTG 210, INFO 200 and DCSN 200) and maintain a minimum overall GPA of 3.0 in all business courses taken. ACCT 211 waives ACCT 210 and FINA 211 waives FINA 210 for engineering students. Other non-business students will receive credits only for either ACCT 210 or ACCT 211 and FINA 210 or FINA 211.

It is important to note the following: No business courses required by the faculty in which the students are pursuing their major field of study (the “major faculty”) may be counted towards the business minor. In cases where students have taken business courses as required by their major faculty, they must take additional business electives to achieve the total 18 credits required for the minor. In all cases, course prerequisites, as stipulated in OSB’s curriculum, apply, and are strictly enforced.

Business Sustainability as a Minor Field of Study

Students who wish to obtain a minor in business sustainability are required to complete 18 credit hours as follows:

- A required course in corporate sustainability: BUSS 224 (Business and Sustainability, 3 cr.)
- Two business courses from the following list: ACCT 210 (Financial Accounting 3 cr.) or ACCT 211 (Financial Accounting for Engineers, 3 cr.), DCSN 200 (Operations Management, 3 cr.), FINA 210 (Business Finance, 3 cr.) or FINA 211 (Introduction to Finance for Engineers, 3 cr.), MKTG 210 (Principles of Marketing, 3 cr.), and MNGT 215 (Fundamentals of Management and Organizational Behavior, 3 cr.).
- One business sustainability course from the following list: DCSN 214 (Sustainable Supply Chain Management, 3 cr.), ENTM 240 (Social entrepreneurship, 3 cr.), FINA 249 (Introduction to Sustainable Finance, 3 cr.), or another pre-approved business sustainability course. (Course prerequisites apply and are strictly enforced. DCSN 200 is a prerequisite for DCSN 214, ACCT 210 or ACCT 211 and FINA 210 or FINA 211 are prerequisites for FINA 249).
- Two courses in the science of sustainability and/or sustainability policy from the list below or other pre-approved courses.
  - CHEM 202 Introduction to Environmental Chemistry (3 cr.)
  - ENHL 220 Fundamentals of Environmental Health Sciences (3 cr.)
  - GEOL 227 Alternative Energy and Climate Change (3 cr.)
  - GEOL 290B/ AROL 235AJ/ Climate and Human Societies (3 cr.)
  - LDEM 203 The Environment and Sustainable Development (3 cr.)
  - LDEM 230 Water and the Environment (3 cr.)
  - LDEM 262 Healing Nature: Theoretical Perspectives and Applications (3 cr.)
  - MSCU 201 Coastal and Marine Environments: Introductory Course (3 cr.)
  - MSUC 204 Coastal and Marine Environments: Maritime Cultural Heritage (3 cr.)
  - PHIL 209 Environmental Ethics (3 cr.)
  - Capstone project (3 cr.)
  - Other pre-approved courses from OSB or outside OSB

Students are required to pass all the required six courses (18 credits) and maintain a minimum overall GPA of 3.0 across these courses to earn the minor in business sustainability.
It is important to note the following: no business courses required by the faculty in which the students are pursuing their major field of study (the “major faculty”) may be counted towards the business minor. In cases where students have taken business courses as required by their major faculty, they must take additional business electives to achieve the total 18 credits required for the minor. In all cases, course prerequisites, as stipulated in OSB’s curriculum, apply, and are strictly enforced.

Entrepreneurship and Innovation as a Minor Field of Study

Students who wish to obtain a minor in entrepreneurship and innovation are required to complete 18 credit hours as follows:

- Three required business courses: ENTM 220 (Entrepreneurship and Business Planning 3 cr.), BUSS 220 (Personal Financial Planning 3 cr.), and MNGT 215 (Fundamentals of Management and Organizational Behavior, 3 cr.).
- One business course from the following list: DCSN 200 (Operations Management, 3 cr.), INFO 200 (Foundations of Information Systems 3 cr.), and MKTG 210 (Principles of Marketing, 3 cr.).
- Two courses from the entrepreneurship and innovation concentration courses (ENTM).
- One required zero-credit workshop on funding strategies for entrepreneurs as part of ENTM 253 (Technical Skills Workshop in Entrepreneurship and Innovation, 0 cr.).

Students are required to pass all the required six courses (18 credits) and the workshop, and maintain a minimum overall GPA of 3.0 across these courses to earn the minor in entrepreneurship and innovation.

It is important to note the following: no business courses required by the faculty in which the students are pursuing their major field of study (the "major faculty") may be counted towards the business minor. In cases where students have taken business courses as required by their major faculty, they must take additional business electives to achieve the total 18 credits required for the minor. In all cases, course prerequisites, as stipulated in OSB's curriculum, apply, and are strictly enforced.

For further information on minors, refer to the General University Academic Information section of the catalogue.

Academic Policies

All information on registration requirements, academic advisers, classification of students, class attendance, correct use of language, cross registration, dean's honor list, academic probation, dismissal, directed study, disclosure of student records, English proficiency, grading system, graduation with distinction and high distinction, and policy on transfer within the university, refer to the General University Academic Information section of this catalogue.

Other OSB-specific academic rules and regulations follow.

Credit Load

The credit load of students is available in the General University Academic Information section of the catalogue. Business students who wish to increase their credit load to 18 credit hours a term must have completed ENGL 203 and ENGL 204 and then petition the OSB Undergraduate Curriculum and Academic Student Affairs Committee for permission to do so. Normally, junior and senior students with an overall GPA of at least 3.3 or a GPA of at least 3.3 in the last two terms are given such permission.

Business students who are registered in the BUSS 245 course (summer internship) may register for no more than three other credit hours, provided that the other course(s) taken do not conflict with the working hours of the summer internship.

Readmission

Refer to the General University Academic Information section of this catalogue.

Normally, transfer credits are considered from AACSB accredited universities and after evaluation of the students' coursework. The students must have achieved a minimum grade equivalent to the AUB GPA of 3.0 in each of the courses for which transfer of credits may be granted.

Regulations on readmission also apply to students who are dropped from other AUB faculties and apply for admission to OSB.

Readmission of students dropped from the school by the Undergraduate Student Academic Affairs and Curriculum Committee requires the approval of that committee, whereas the readmission of students dropped from other AUB faculties requires the approval of the OSB Admissions Committee.

Incompletes (Final Exam Policy)

Students who, at the end of a term, are missing a major requirement of a course (e.g., final examination), they (or their family member) must, within 72 hours of the final exam date, submit a paper or online makeup petition along with evidence of a valid excuse. Medical reports and/or qualified professional opinions issued by an AUBMC doctor or by the University Health Services are normally accepted. Should the validity of an excuse be in question, the OSB Undergraduate Student Academic Affairs and Curriculum Committee may not allow the students to sit for a makeup examination.

If granted permission, students should be ready to take the makeup exam during the final exams period. In rare and exceptional circumstances, the OSB Undergraduate Curriculum and Academic Student Affairs Committee may grant the students additional time, normally no later than the first month of the subsequent term. Students who have already sat for a final examination may not re-take that examination.

Examinations and Quizzes

Undergraduate business courses, other than tutorial and seminar courses, have final examinations unless otherwise authorized by the OSB Undergraduate Student Academic Affairs and Curriculum Committee. In all courses in which final examinations are given, students would not receive a passing grade without taking a final examination. Even though final examinations are not required in tutorial and seminar courses, the instructor may choose to give a final examination.

- Students who miss a major quiz or a midterm exam or the final exam without a valid reason will receive a grade of zero. No make-up is allowed.
- No shift in weight to the final exam is allowed.
- The midterm exam policy should be stated clearly in the syllabus of the course.
- No extra sessions will be given during the reading period.
- No final exams will be held during or before the reading period.
- Students should be informed that any form of solicitation of grades will be subject to disciplinary action.

In order to receive permission for a make-up, and only for serious medical reasons, students must provide to the instructor, within 72 hours of the missed quiz or exam, an approved medical report signed by an ER or a University Health Services (UHS) doctor at AUB Medical Center (AUBMC), and/or qualified professional opinions issued by an AUB employee for further consideration. If the make-up quiz or midterm exam is approved, then the students will sit for the make-up on any of the following three days: the last day of term classes or the first two days of the reading period as decided by the director of the undergraduate program. Should the students appeal the instructor's decision, the matter should be referred to the OSB's Student Affairs Committee.

Study Abroad and Exchange Program

Business students who have started their undergraduate program at AUB and who wish to study abroad must seek prior approval from the OSB Undergraduate Student Academic Affairs and Curriculum Committee if the students wish to spend up to one year and earn up to 30 credits at another university. However, the students must spend their last term at AUB. They must achieve an average grade of "B" in all the courses (business or non-business) for which transfer credit may be granted. Courses with a grade less than "C+" will not be transferred. Courses with online or hybrid method of delivery will not be transferred. Business students wishing to study abroad through an exchange program (mainly AACSB accredited schools) approved by the Office of International Programs, are allowed to transfer two core and two concentration business courses provided they receive an average grade of "B" in all the courses with a minimum grade equivalent to a "C+" in any of the courses. Non-business students, who are working towards a minor offered by the BBA program and wishing to study abroad through an exchange program approved by the Office of International Programs, are allowed to transfer one of the six courses that are required for a minor in business.

Graduation Requirements

Refer to the General University Academic Information section of this catalogue. Graduation requirements for the bachelor of business administration (BBA) are as follows:

- A minimum of six terms beginning with the sophomore class is required.
- A maximum of six calendar years is allowed for the graduation of students who begin with the sophomore class, four calendar years for juniors and two calendar years for seniors. Students who fail to complete their degree program within these specified times must petition the OSB Undergraduate Student Academic Affairs and Curriculum Committee for an extension.
- Students transferring to AUB from another recognized institution of higher learning must register in the final three regular terms and complete at least 45 credits at AUB, of which a minimum of 24 credits must be in business before they are allowed to graduate with a BBA. For the purpose of this requirement, two summer terms shall be considered equivalent to one term.
- Transfer students from within AUB must meet the residency requirement before they graduate with a BBA degree. The residency requirement stipulates that students must spend a minimum of one regular term (i.e., fall or spring) and one summer term in the school, during which they must complete a minimum of 24 credits, 12 of which are business credits. During this period, the students must meet all minimum academic standards set forth by the school.

- Sophomore students should complete a minimum of 90 credits. With the approval of the OSB Undergraduate Student Academic Affairs and Curriculum Committee, tracks may establish programs that exceed these minimum credit requirements.
- Students should complete 51 credits in business courses comprising 36 credits of core courses and 15 credits of business electives in a concentration area. Students must achieve a cumulative GPA of at least 2.3 in these 51 credits and GPA of 2.3 on the 36 credits of core courses.
- For students to graduate with a concentration, the 15 credits in the concentration area must be completed with a cumulative GPA of at least 2.3. Normally a maximum of two courses completed outside OSB may count towards the concentration.
- Students must complete two required 0-credit business workshops: Business Communication Skills workshop and one Technical Skills workshop in the students' chosen concentration. Students may enroll in one optional Critical Thinking Skills workshop.
- Students must successfully complete the assurance of learning requirements.
- When students repeat a course, the highest grade obtained in the course is used in computing the students' average for graduation purposes. Students may repeat any course.
- Students must have grades of C+ or more in at least 50 credits numbered 200 or above.
- All students entering at sophomore, junior or senior level must satisfy the Arabic language requirements by taking one Arabic course.
- All business students must take Understanding Communication - English courses as determined by placement upon matriculation. These required courses may be taken immediately upon matriculation and must be continued without interruption until completed.
- For example, students entering at the lowest level may take four terms of English (Intensive ENGL 100A or 100B, if required, and/or 102, 203 and 204); students entering at the third level must take two terms (203 and 204; i.e., six credits). If ENGL 203 was taken during freshman year, students must substitute it with any 3-credit elective.
- All business students must take MATH 203, MATH 204 and CMPS 208. Students who are exempted from MATH 203 must take, in addition to MATH 204 and CMPS 208, any other free elective course offered at AUB faculties. If MATH 203 or MATH 101 was taken during freshman year, students must substitute it with any 3-credit elective.
- All business students must take ECON 211 and ECON 212.
- As per the university general education requirement, all business students must take three courses (9 credits) from the General Education Cultures and Histories courses. Of those, 3 credits should be in the History of Ideas and 3 credits should hold both "Cultures and Histories" AND "Social Inequalities" attributes. In addition, students are required to take BUSS 215, which is designated as a Human Values course for the general education requirement. Students must also take a course (3 credits) in Community Engaged Learning.
- All business students must take one course (3 credits) from Understanding the World from the General Education Program.
- Students must complete ACCT 210, FINA 210, INFO 200, MNGT 215, and MKTG 210 as prerequisites to BUSS 245.
- All business students must take one free business elective course from OSB offerings. Students pursuing a minor at any other AUB faculty, dual degree or premedical may use this free business elective to take a non-business course towards fulfilling the minor, dual degree, or premedical requirements.
- All business students must satisfy the general education requirements as specified for all AUB students.

- Students already holding a bachelor's degree outside business and wishing to obtain a BBA must complete 51 business credit hours after admission. However, students who have completed a minor in business or who have taken 18 or more business credit hours prior to applying for the BBA as a second degree must take no fewer than 33 business credit hours. All second-degree students must also fulfill other non-business graduation requirements.

Bachelor of Business Administration Curriculum

The undergraduate program, leading to a BBA degree, requires students to complete 120 credit hours for those beginning at the freshman level and 90 credit hours for those joining the university as sophomores. Of the total required credit hours, the BBA program requires 51 credit hours, including a 1-credit internship program, to be satisfactorily completed in business courses, with the remainder allocated to liberal arts/non-business courses. In addition, and as a condition for graduation, all students are required to successfully complete two 0-credit pass/fail workshops designed to enhance their business communication skills and technical skills within the business concentration. Students have the option to enroll in an additional 0-credit workshop designed to enhance their critical thinking skills.

Assurance of Learning Requirements

To comply with AACSB Assurance of Learning guidelines and standards, all students are required, as a condition for graduation, to successfully complete work assigned by the school for this purpose during their last term.

Business Requirements

Of the total required credit hours, 51 must be satisfactorily completed in business courses. Of these 51, a general business core comprising 33 credit hours is common to all business students, and one free 3-credit business elective. In addition to this general business core (which includes the two 0-credit workshops mentioned above), the students must complete 15 additional credit hours of business electives in one of the following concentration areas which include:

Concentration	Discipline	Track
Accounting	Accounting	Finance, Accounting, and Managerial Economics (FAME)
Finance	Finance	Finance, Accounting, and Managerial Economics (FAME)
Marketing	Marketing	Management, Marketing, and Entrepreneurship (MME)

Entrepreneurship and Innovation	Entrepreneurship and Innovation	Management, Marketing, and Entrepreneurship (MME)
Management and Organization	Management	Management, Marketing, and Entrepreneurship (MME)
Information Systems	Business Information and Decision Systems	Business Information and Decision Systems (BIDS)
Operations Management	Business Information and Decision Systems	Business Information and Decision Systems (BIDS)
General Business	Multidisciplinary	NA

Students selecting the finance concentration have the option to select a sub-emphasis in either corporate finance or investment management. All courses qualifying as business electives must be offered by OSB.

The students must declare concentration(s) no later than the end of the junior year. BBA students are allowed to graduate with a maximum of two concentrations by completing 15 credits in the first concentration, 12 credits in the second concentration and one technical skills workshop in each concentration; however, the free business elective course can be counted towards the second concentration provided that the free business elective course is listed in the second concentration courses.

Required Core Business Courses (36 credits)

Code	Course Title	Credits
ACCT 210	Financial Accounting	3
ACCT 215	Management Accounting	3
BUSS 200	Business Data Analysis	3
BUSS 211	Business Law	2
BUSS 215	Business Ethics	3
BUSS 239	Business Communication Skills Workshop	0
BUSS 245	Internship/Practicum	1
BUSS 249	Strategic Management	3
DCSN 200	Operations Management	3
FINA 210	Business Finance	3

INFO 200	Foundations of Information Systems	3
MNGT 215	Fundamentals of Management and Organizational Behavior	3
MKTG 210	Principles of Marketing	3
Free Business Elective	Any business elective course	3
Total Business Credit Hours		**36**

Note:

- Students will neither receive credits for ECON 213, EDUC 219, EDUC 227, STAT 201, ENGM 500, AGSC 212, nor waive any of the business courses of similar nature.
- STAT 210 is considered as equivalent to BUSS 200 for students who completed STAT 210 with a minimum grade of B- prior to transferring to business. Business students may not take STAT 210 and receive credits for it.

Internship Requirements

All BBA students must successfully complete the internship requirement (BUSS 245). Normally, the internship takes place in the summer term directly following the completion of the junior year. Students must register for the summer internship and provide the school with an employer's acceptance. All students applying for the internship program must:

- Be juniors or seniors who have completed the following courses by the end of the spring term: FINA 210 or FINA 211, MNGT 215, MKTG 210 and INFO 200.
- Have completed the following by the end of the fall term:
  - at least 38 credit hours if they were admitted to the university as sophomores.
  - or at least 68 credit hours if they were admitted to the university as freshmen.

Internship Guidelines

- The internship is normally eight weeks in duration and takes place during the summer term (i.e., any eight weeks between mid-May and end of August).
- Students must comply with the policy of the host company regarding working days and working hours.
- The workweek must not be less than five working days.
- Working hours are according to host company policies.
- The students may choose to complete their internship locally or abroad.
- The students will be supervised by a faculty member from OSB and the work supervisor at the company throughout the internship period.
- The internship is graded. The grade is based on the evaluations of both the direct work supervisor and the OSB faculty supervisor.
- The internship grade is included in the computation of the students' overall GPA.
- The students cannot do their internship at a family business.

General Education Requirements

Starting at the sophomore level, of the required 90 credit hours of the BBA program, 39 credit hours must be satisfactorily completed in general education courses. These include 6 credit hours of English, 6 credit hours of economics (Societies and Individuals), 9 credit hours of Cultures and Histories including 3 credits from the History of Ideas and 3 credits that hold both “Cultures and Histories” and “Social Inequalities” attributes, 6 credit hours of mathematics (quantitative reasoning), 3 credit hours of computer science (quantitative reasoning), 3 credit hours of Arabic, 3 credit hours of Understanding the World, and 3 credits of Community Engaged Learning. For a list of specific required general education courses, refer to the next section.

Students who took required general education courses in their freshman year are exempted from them in the sophomore year. These students, as well as sophomore students who are exempted from specific general education course(s), must take additional free electives to fulfill the minimum of 39 credit hours of general education courses required for graduation. These free electives may be taken in business or non-business courses.

Program Outline Important Notes

It is important to note the following:

- Holders of the Literature & Humanities or the Sociology & Economics BACC II must take MATH 203 and MATH 204. Holders of the General Sciences or Life Sciences BACC II must take only MATH 204 and an additional free elective to substitute for MATH 203 as per the minimum credit hour requirement for degree completion.
- French Baccalaureate holders who did not take math in grade 12 (Terminale) must take MATH 203 and MATH 204. French Baccalaureate holders who completed mathématiques expertes or spécialité mathématiques or mathématiques complémentaires in grade 12 (Terminale) must take only MATH 204 and an additional free elective to substitute for MATH 203 as per the minimum credit hour requirement for degree completion.
- International Baccalaureate diploma holders who completed math at the Standard Level (SL) or at the Higher Level (HL) must take only MATH 204 and an additional free elective to substitute for MATH 203 as per the minimum credit hour requirement for degree completion.
- IGCSE diploma holders who completed math at the Ordinary Level (O-Level) must take MATH 203 and MATH 204. IGCSE diploma holders who completed math at the Advanced Level (A-Level) must take only MATH 204 and an additional free elective to substitute for MATH 203.
- In order to complete the humanities requirement, students must complete 9 credit hours of Cultures and Histories courses. In addition, 3 credits must be completed from Human Values (BUSS 215). Please refer to the General Education section of this catalogue for more detail.
- Understanding the World courses must be chosen as per the university General Education guidelines (refer to the General Education section of this catalogue).
- The Business Communication Skills workshop, the Technical Skills workshop and the Critical Thinking Skills workshop are graded on a P/F basis.
- ECON 213, EDUC 219, EDUC 227, ENMG 500, AGSC 212, STAT 201, STAT 210, as well as any other course that significantly overlaps with OSB core courses cannot be given equivalence to OSB required courses. These courses cannot be counted for credit as business or non-business free electives.

- Courses that may significantly overlap with business elective courses, such as MCOM 217, and SOAN 243, may be taken as free electives. However, students will not receive credit for any of these courses if they have taken the respective equivalent business elective.
- Students who are exempted from any required courses such as MATH 203 have to meet the 90 credit-hour graduation requirement by taking additional free electives.

Career Readiness Program

Career Readiness is an optional structured program that allows students to complete the requirements of the BBA degree while gaining significant work experience. It is a committed partnership between OSB and a selective number of companies to provide students with experiential learning opportunities and an in-depth understanding of the workplace by the time they graduate. Based on the principle that learning works best when academic achievement is enriched with practical experience, the program provides a match between employers seeking well-educated student talents and students seeking to reskill and upskill in a work integrated learning environment.

The program offers two courses: CO-OP education (BUSS 255) and Advanced COOP education (BUSS 256). These are 3 credits courses that are optional. Students who successfully complete BUSS 255 (3 credits) are exempted from the BUSS 245 Internship course; only one credit will count towards the 120 credits required to complete the BBA degree. All other CO-OP credits are not counted towards the BBA degree requirements.

Upon completing the CO-OP and/or Advanced CO-OP education, students will receive a Certificate of Completion (specifying the work duration) in addition to their BBA degree.

After each CO-OP education course, students must spend one term as full-time students at OSB.

To enroll in the CO-OP education course (BUSS 255), students must have applied and be selected in the preceding term. Selection to the course is based on academic performance, CV, interview, and a reference letter. Moreover, students must have completed 36 credits by the time of enrollment, including all the prerequisite courses, with a cumulative GPA of 3.0 or better.

To enroll in the Advanced CO-OP education course (BUSS 256), students must have successfully completed the CO-OP education course (BUSS 255) followed by one term as full-time students. Students must have applied and be selected in the preceding term. Selection to the course is based on academic performance, CV, interview, and a reference letter. Moreover, students must have completed 48 credits by the time of enrollment, including all the prerequisite courses, with a cumulative GPA of 3.0 or better.

Note: The final enrollment into either course is subject to the availability of vacancies approved by the Career Readiness Program Office and the partner company's requirements.

The Management, Marketing, and Entrepreneurship Track

In addition to the 39 credit general undergraduate requirement from outside the school (listed earlier) and the 36 credits required in the business core (ACCT 210, ACCT 215, BUSS 200, BUSS 211, BUSS 215, BUSS 239, BUSS 245, BUSS 249, DCSN 200, FINA 210, INFO 200, MKTG 210, MNGT 215, and a free business elective), the track requires students following one of its concentrations to take 15 credits in the concentration area (including the required concentration courses in each area) and a technical skills workshop in the concentration area. Students may choose to pursue a concentration in marketing, management and organization, entrepreneurship and innovation, or general business as described in the corresponding degree plan for that concentration.

BBA Program with Concentration in General Business

Program Outline

The following is a proposed study plan for the BBA program with concentration in general business:

Required concentration courses:

> Any combination of five concentration courses

Required Technical Skills Workshop from among the following:

> ACCT 253, DCSN 253, INFO 253, ENTM 253, FINA 253, MNGT 253 or MKTG 253

Year I

Freshman Year Total Credit Hours 30. Refer to the Admissions section of this catalogue.

Year II

Term 1	Credits
ACCT 210	3
ENGL 203	3
MATH 203	3
ECON 211 or ECON 212	3
CMPS 208	3

Term 2	Credits
FINA 210	3
ENGL 204	3

MATH 204	3
DCSN 200	3
MNGT 215	3
BUSS 239	0

Year III

Term 3	Credits
ECON 212 or ECON 211	3
BUSS 200	3
ARAB	3
MKTG 210	3
INFO 200	3
Technical Skills Workshop (taken in 3rd or 4th term)	0

Term 4	Credits
ACCT 215	3
BUSS 215 (Human Values)	3
Elective Community Engaged Learning	3
Elective Cultures and Histories (History of Ideas)	3
Business Elective	3
Technical Skills Workshop (taken in 3rd or 4th term)	0

Summer	Credits
Internship Practicum: BUSS 245	1

Year IV

Term 5	Credits
Business Elective	3
Business Elective	3
Free Business Elective	3
Elective Cultures and Histories AND Social Inequalities	3
BUSS 211	2
BUSS 253 – Optional (taken in 5th or 6th term)	0

Term 6	Credits
Business Elective	3
Business Elective	3
BUSS 249	3
Elective Understanding the World	3
Elective Cultures and Histories	3
BUSS 253 - Optional (taken in 5th or 6th term)	0

BBA Program with Concentration in Entrepreneurship and Innovation

Program Outline

The following is a proposed study plan for the BBA program with concentration in entrepreneurship and innovation:

Required concentration courses:

- ENTM 220
- ENTM 221
- Two other ENTM concentration course
- One other ENTM or MNGT or MKTG concentration course
- Required Technical Skills Workshop: ENTM 253

Year I

Freshman Year Total Credit Hours 30. Refer to the Admissions section of this catalogue.

Year II

Term 1	Credits
ACCT 210	3
ENGL 203	3
MATH 203	3
ECON 211 or ECON 212	3
CMPS 208	3

Term 2	Credits
FINA 210	3
ENGL 204	3
MATH 204	3
DCSN 200	3
MNGT 215	3
BUSS 239	0

Year III

Term 3	Credits
ECON 212 or ECON 211	3
BUSS 200	3
ARAB	3
MKTG 210	3
INFO 200	3
ENTM 253 (taken in 3rd or 4th term)	0

Term 4	Credits
ACCT 215	3
BUSS 215 (Human Values)	3
Elective Community Engaged Learning	3
Elective Cultures and Histories (History of Ideas)	3
ENTM 220 or ENTM 221	3
ENTM 253 (taken in 3rd or 4th term)	0

Summer	Credits
Internship Practicum: BUSS 245	1

Year IV

Term 5	Credits
ENTM 220 or ENTM 221	3
ENTM Concentration	3
Free Business Elective	3
Elective Cultures and Histories AND Social Inequalities	3
BUSS 211	2
BUSS 253 - Optional (taken in 5th or 6th term)	0

Term 6	Credits
ENTM Concentration	3
ENTM or MNGT or MKTG Concentration	3
BUSS 249	3
Elective Understanding the World	3
Elective Cultures and Histories	3
BUSS 253 - Optional (taken in 5th or 6th term)	0

BBA Program with Concentration in Management and Organization

Program Outline

The following is a proposed study plan for the BBA program with concentration in management and organization:

Required concentration courses:

- Option 1:
  - Two required concentration courses: MNGT 224 and MNGT 227
  - Three other MNGT concentration courses
- Option 2:
  - Two required concentration courses: MNGT 224 and MNGT 227
  - Two other MNGT concentration courses
  - One AUB course from: PSYC 212, PSYC 216, PSYC 220, PSPA 212, PSPA 259
- Required Technical Skills Workshop for both options: MNGT 253

Year I

Freshman Year Total Credit Hours 30. Refer to the Admissions section of this catalogue.

Year II

Term 1	Credits
ACCT 210	3
ENGL 203	3
MATH 203	3
ECON 211 or ECON 212	3
CMPS 208	3

Term 2	Credits
FINA 210	3
ENGL 204	3
MATH 204	3
DCSN 200	3

MNGT 215	3
BUSS 239	0

Year III

Term 3	Credits
ECON 212 or ECON 211	3
BUSS 200	3
ARAB	3
MKTG 210	3
INFO 200	3
MNGT 253 (taken in 3rd or 4th term)	0

Term 4	Credits
ACCT 215	3
BUSS 215 (Human Values)	3
Elective Community Engaged Learning	3
Elective Cultures and Histories (History of Ideas)	3
MNGT 224 or MNGT 227	3
MNGT 253 (taken in 3rd or 4th term)	0

Summer	Credits
Internship Practicum: BUSS 245	1

Year IV

Term 5	Credits
MNGT 224 or MNGT 227	3
MNGT Concentration	3
Free Business Elective	3
Elective Cultures and Histories AND Social Inequalities	3
BUSS 211	2
BUSS 253 – Optional (taken in 5th or 6th term)	0

Term 6	Credits
MNGT Concentration	3
MNGT Concentration	3
BUSS 249	3
Elective Understanding the World	3
Elective Cultures and Histories	3
BUSS 253 - Optional (taken in 5th or 6th term)	0

BBA Program with Concentration in Marketing

Program Outline

The following is a proposed study plan for the BBA program with concentration in marketing:

Required concentration courses:

- Option 1:
  - Five MKTG concentration courses (including MKTG 240)
- Option 2:
  - Four MKTG concentration courses (including MKTG 240) and one AUB course from: MCOM 202, MCOM 218, SOAN 225, SOAN 237
- Required Technical Skills Workshop for both options: MKTG 253

Year I

Freshman Year Total Credit Hours 30. Refer to the Admissions section of this catalogue.

Year II

Term 1	Credits
ACCT 210	3
ENGL 203	3
MATH 203	3
ECON 211 or ECON 212	3
CMPS 208	3

Term 2	Credits
FINA 210	3
ENGL 204	3
MATH 204	3
DCSN 200	3
MNGT 215	3
BUSS 239	0

Year III

Term 3	Credits
ECON 212 or ECON 211	3
BUSS 200	3
ARAB	3
MKTG 210	3
INFO 200	3
MKTG 253 (taken in 3rd or 4th term)	0

Term 4	Credits
ACCT 215	3
BUSS 215 (Human Values)	3
Elective Community Engaged Learning	3
Elective Cultures and Histories (History of Ideas)	3
MKTG 240	3
MKTG 253 (taken in 3rd or 4th term)	0

Summer	Credits
Internship Practicum: BUSS 245	1

Year IV

Term 5	Credits
MKTG Concentration	3
MKTG Concentration	3
Free Business Elective	3
Elective Cultures and Histories AND Social Inequalities	3
BUSS 211	2
BUSS 253 – Optional (taken in 5th or 6th term)	0

Term 6	Credits
MKTG Concentration	3
MKTG Concentration	3
BUSS 249	3
Elective Understanding the World	3
Elective Cultures and Histories	3
BUSS 253 - Optional (taken in 5th or 6th term)	0

The Finance, Accounting, and Managerial Economics Track

In addition to the 39 credit general undergraduate requirement from outside the school (listed earlier) and the 36 credits required in the business core (ACCT 210, ACCT 215, BUSS 200, BUSS 211, BUSS 215, BUSS 239, BUSS 245, BUSS 249, DCSN 200, FINA 210, INFO 200, MKTG 210, MNGT 215 and a free business elective), the track requires students following one of its concentrations to take 15 credits in the concentration area (including the required concentration courses in each area) and a technical skills workshop in the concentration area. Students may choose to pursue a concentration in accounting, finance, finance with corporate finance emphasis, or finance with investment management emphasis as described in the corresponding degree plan for that concentration.

BBA Program with Concentration in Accounting

Program Outline

The following is a proposed study plan for the BBA program with concentration in accounting:

Required concentration courses:

- ACCT 221
- ACCT 223
- Three other ACCT concentration courses
- Required Technical Skills Workshop: ACCT 253

Year I

Freshman Year Total Credit Hours 30. Refer to the Admissions section of this catalogue.

Year II

Term 1	Credits
ACCT 210	3
ENGL 203	3
MATH 203	3
ECON 211 or ECON 212	3
CMPS 208	3

Term 2	Credits
FINA 210	3
ENGL 204	3
MATH 204	3
DCSN 200	3
MNGT 215	3
BUSS 239	0

Year III

Term 3	Credits
ECON 212 or ECON 211	3
BUSS 200	3
ARAB	3
MKTG 210	3
ACCT 215	3
ACCT 253 (taken in 3rd or 4th term)	0

Term 4	Credits
INFO 200	3
BUSS 215 (Human Values)	3
Elective Community Engaged Learning	3
Elective Cultures and Histories (History of Ideas)	3
ACCT 221	3
ACCT 253 (taken in 3rd or 4th term)	0

Summer	Credits
Internship Practicum: BUSS 245	1

Year IV

Term 5	Credits
ACCT 223	3
ACCT Concentration	3
Free Business Elective	3
Elective Cultures and Histories AND Social Inequalities	3
BUSS 211	2
BUSS 253 - Optional (taken in 5th or 6th term)	0

Term 6	Credits
ACCT Concentration	3
ACCT Concentration	3
BUSS 249	3
Elective Understanding the World	3
Elective Cultures and Histories	3
BUSS 253 (taken in 5th or 6th term)	0

BBA Program with Concentration in Finance

Program Outline

The following is a proposed study plan for the BBA program with concentration in finance:

Required concentration courses:

- FINA 220
- FINA 222
- Three other FINA concentration courses
- Required Technical Skills Workshop: FINA 253

Year I

Freshman Year Total Credit Hours 30. Refer to the Admissions section of this catalogue.

Year II

Term 1	Credits
ACCT 210	3
ENGL 203	3
MATH 203	3
ECON 211 or ECON 212	3
CMPS 208	3

Term 2	Credits
FINA 210	3
ENGL 204	3
MATH 204	3
DCSN 200	3
MNGT 215	3
BUSS 239	0

Year III

Term 3	Credits
ECON 212 or ECON 211	3
BUSS 200	3
ARAB	3
MKTG 210	3
INFO 200	3
FINA 253 (taken in 3rd or 4th term)	0

Term 4	Credits
ACCT 215	3
BUSS 215 (Human Values)	3
Elective Community Engaged Learning	3
Elective Cultures and Histories (History of Ideas)	3
FINA 220 or FINA 222	3
FINA 253 (taken in 3rd or 4th term)	0

Summer	Credits
Internship Practicum: BUSS 245	1

Year IV

Term 5	Credits
FINA 222 or FINA 220	3
FINA Concentration	3
Free Business Elective	3
Elective Cultures and Histories AND Social Inequalities	3
BUSS 211	2
BUSS 253 – Optional (taken in 5th or 6th term)	0

Term 6	Credits
FINA Concentration	3
FINA Concentration	3
BUSS 249	3
Elective Understanding the World	3
Elective Cultures and Histories	3
BUSS 253 - Optional (taken in 5th or 6th term)	0

BBA Program with Concentration in Finance - Corporate Finance Emphasis

Program Outline

The following is a proposed study plan for the BBA program with concentration in finance – corporate finance emphasis:

Required concentration courses:

- FINA 220
- FINA 222
- FINA 246
- Two other FINA concentration courses to be chosen from the following list: FINA 231, FINA 236, FINA 240, FINA 248, FINA 249
- Required Technical Skills Workshop: FINA 253

Year I

Freshman Year Total Credit Hours 30. Refer to the Admissions section of this catalogue.

Year II

Term 1	Credits
ACCT 210	3
ENGL 203	3
MATH 203	3
ECON 211 or ECON 212	3
CMPS 208	3

Term 2	Credits
FINA 210	3
ENGL 204	3
MATH 204	3
DCSN 200	3
MNGT 215	3
BUSS 239	0

Year III

Term 3	Credits
ECON 212 or ECON 211	3
BUSS 200	3
ARAB	3
MKTG 210	3
INFO 200	3
FINA 253 (taken in 3rd or 4th term)	0

Term 4	Credits
ACCT 215	3
BUSS 215 (Human Values)	3
Elective Community Engaged Learning	3
Elective Cultures and Histories (History of Ideas)	3
FINA 220 or FINA 222	3
FINA 253 (taken in 3rd or 4th term)	0

Summer	Credits
Internship Practicum: BUSS 245	1

Year IV

Term 5	Credits
FINA 222 or FINA 220	3
FINA 240, FINA 231, FINA 236, FINA 248, or FINA 249	3
Free Business Elective	3
Elective Cultures and Histories AND Social Inequalities	3
BUSS 211	2
BUSS 253 – Optional (taken in 5th or 6th term)	0

Term 6	Credits
FINA 246	3
FINA 240, FINA 231, FINA 236, FINA 248, or FINA 249	3
BUSS 249	3
Elective Understanding the World	3
Elective Cultures and Histories	3
BUSS 253 - Optional (taken in 5th or 6th term)	0

BBA Program with Concentration in Finance – Investment Management Emphasis

Program Outline

The following is a proposed study plan for the BBA program with concentration in finance – investment management emphasis:

- Required concentration courses:
- FINA 220
- FINA 222
- FINA 240
- Two other FINA concentration courses to be chosen from the following list: FINA 221, FINA 230, FINA 244, FINA 245
- Required Technical Skills Workshop: FINA 253

Year I

Freshman Year Total Credit Hours 30. Refer to the Admissions section of this catalogue.

Year II

Term 1	Credits
ACCT 210	3
ENGL 203	3
MATH 203	3
ECON 211 or ECON 212	3
CMPS 208	3

Term 2	Credits
FINA 210	3
ENGL 204	3
MATH 204	3
DCSN 200	3
MNGT 215	3
BUSS 239	0

Year III

Term 3	Credits
ECON 212 or ECON 211	3
BUSS 200	3
ARAB	3
MKTG 210	3
INFO 200	3
FINA 253 (taken in 3rd or 4th term)	0

Term 4	Credits
ACCT 215	3
BUSS 215 (Human Values)	3
Elective Community Engaged Learning	3
Elective Cultures and Histories (History of Ideas)	3
FINA 220 or FINA 222	3
FINA 253 (taken in 3rd or 4th term)	0

Summer	Credits
Internship Practicum: BUSS 245	1

Year IV

Term 5	Credits
FINA 222 or FINA 220	3
FINA 221, FINA 230, FINA 244, or FINA 245	3
Free Business Elective	3
Elective Cultures and Histories AND Social Inequalities	3
BUSS 211	2
BUSS 253 – Optional (taken in 5th or 6th term)	0

Term 6	Credits
FINA 240	3
FINA 221, FINA 230, FINA 244, or FINA 245	3
BUSS 249	3
Elective Understanding the World	3
Elective Cultures and Histories	3
BUSS 253 - Optional (taken in 5th or 6th term)	0

The Business Information and Decision Systems Track

In addition to the 39 credits of general undergraduate requirements from outside the school (listed earlier) and the 36 credits required in the business core (ACCT 210, ACCT 215, BUSS 200, BUSS 211, BUSS 215, BUSS 239, BUSS 245, BUSS 249, DCSN 200, FINA 210, INFO 200, MKTG 210, MNGT 215 and a free Business elective), the track requires students following one of its concentrations to take 15 credits in the concentration area (including the required concentration courses in each area) and a technical skills workshop in the concentration area. Students may choose to pursue a concentration in information systems or operations management as described in the corresponding degree plan for that concentration.

BBA Program with Concentration in Information Systems

Program Outline

The following is a proposed study plan for the BBA program with concentration in information systems:

Required concentration courses:

- DCSN 205
- INFO 225 or INFO 226 (at least one of them should be taken)
- Two INFO concentration courses
- One INFO or DCSN concentration course
- Required Technical Skills Workshop: INFO 253

Year I

Freshman Year Total Credit Hours 30. Refer to the Admissions section of this catalogue.

Year II

Term 1	Credits
ACCT 210	3
ENGL 203	3
MATH 203	3
ECON 211 or ECON 212	3
CMPS 208	3

Term 2	Credits
FINA 210	3
ENGL 204	3
MATH 204	3
DCSN 200	3
MNGT 215	3
BUSS 239	0

Year III

Term 3	Credits
ECON 212 or ECON 211	3
BUSS 200	3
ARAB	3
MKTG 210	3
INFO 200	3
INFO 253 (taken in 3rd or 4th term)	0

Term 4	Credits
ACCT 215	3
BUSS 215 (Human Values)	3
Elective Community Engaged Learning	3
Elective Cultures and Histories (History of Ideas)	3
INFO 225 or INFO 226	3
INFO 253 (taken in 3rd or 4th term)	0

Summer	Credits
Internship Practicum: BUSS 245	1

Year IV

Term 5	Credits
DCSN 205	3
INFO Concentration	3
Free Business Elective	3
Elective Cultures and Histories AND Social Inequalities	3
BUSS 211	2
BUSS 253 – Optional (taken in 5th or 6th term)	0

Term 6	Credits
INFO Concentration	3
INFO or DCSN Concentration	3
BUSS 249	3
Elective Understanding the World	3
Elective Cultures and Histories	3
BUSS 253 - Optional (taken in 5th or 6th term)	0

BBA Program with Concentration in Operations Management

Program Outline

The following is a proposed study plan for the BBA program with concentration in operations management:

Required concentration courses:

- DCSN 205
- INFO 225 or INFO 226 (at least one of them should be taken)
- Two DCSN concentration courses
- One DCSN or INFO concentration course
- Required Technical Skills Workshop: DCSN 253

Year I

Freshman Year Total Credit Hours 30. Refer to the Admissions section of this catalogue.

Year II

Term 1	Credits
ACCT 210	3
ENGL 203	3
MATH 203	3
ECON 211 or ECON 212	3
CMPS 208	3

Term 2	Credits
FINA 210	3
ENGL 204	3
MATH 204	3
DCSN 200	3
MNGT 215	3
BUSS 239	0

Year III

Term 3	Credits
ECON 212 or ECON 211	3
BUSS 200	3
ARAB	3
MKTG 210	3
INFO 200	3
DCSN 253 (taken in 3rd or 4th term)	0

Term 4	Credits
ACCT 215	3
BUSS 215 (Human Values)	3
Elective Community Engaged Learning	3
Elective Cultures and Histories (History of Ideas)	3
DCSN 205	3
DCSN 253 (taken in 3rd or 4th term)	0

Summer	Credits
Internship Practicum: BUSS 245	1

Year IV

Term 5	Credits
INFO 225 or INFO 226	3
DCSN Concentration	3
Free Business Elective	3
Elective Cultures and Histories AND Social Inequalities	3
BUSS 211	2
BUSS 253 – Optional (taken in 5th or 6th term)	0

Term 6	Credits
DCSN Concentration	3
DCSN or INFO Concentration	3
BUSS 249	3
Elective Understanding the World	3
Elective Cultures and Histories	3
BUSS 253 - Optional (taken in 5th or 6th term)	0

Undergraduate Business Courses

Undergraduate Business Course Prefixes

BBA courses all have a prefix corresponding to their topical coverage: ACCT (Accounting), DCSN (Business Decision Systems), ENTM (Entrepreneurship), FINA (Finance), INFO (Information Systems), MKTG (Marketing) and MNGT (Management). A detailed description of courses is available in their respective track section. Interdisciplinary and integrative courses are labeled by the prefix BUSS and described below.

BUSS Courses

BUSS 101 Introduction to Business 3 cr.
This course introduces students to the many facets of private enterprise systems and the businesses that operate within its framework. Moreover, it focuses on an overview of the forces within the business environment, i.e., globalization, economics, government, and society. Students use this course to learn more about the business landscape, by focusing on business systems and key functional areas within the firm, such as marketing, operations, accounting, finance, management, and human resources. Freshman standing only.

BUSS 200 Business Statistics 3 cr.
Introduces the basic statistical methods that are commonly used for managerial decision making. Emphasis is on applying methods and interpreting results, with extensive use of statistical software. The course first reviews the descriptive statistics and basic concepts of probability distributions, particularly the normal distribution. The course also addresses topics on inferential statistics such as confidence intervals, hypothesis testing, one way analysis of variance and correlation analysis. The course finally covers simple linear regression and introduces students to multiple linear regression and time series forecasting. Business majors only. Prerequisites: MATH 204 and CMPS 208.

BUSS 211 Business Law 2 cr.
The main objective of the course is to help business students understand the Lebanese and American legal aspects of common business activities and the formation and function of commercial companies, along with the related ethical principles. Junior or senior standing business majors only.

BUSS 215 Business Ethics 3 cr.
This is an introductory course that provides students with an overview of business ethics at the individual, organizational, and societal levels. Issues such as corruption, sexual harassment, fair trade, fraud, whistleblowing, corporate social responsibility, ethical norms, ethical values, environmental responsibility, and many more will be examined both in the international and local Lebanese context. Ultimately, the course is designed to not only introduce students to a wide array of current ethical issues in business but to also foster skills related to critically analyzing the ethical and social dimensions of business-related problems in order to build more ethically informed rationales for decision-making. General Education/ Human Values course. Junior or senior standing.

BUSS 220 Personal Financial Planning 3 cr.
Every financial decision we make has an impact on our lives and our future. This course will engage a diverse student population by helping them make personal connections to financial concepts that can immediately impact their current financial situations, avoid basic financial mistakes, and provide a strong foundational knowledge of financial concepts and tools that they need to manage their day-to-day finances and plan their future. This course empowers students to define their personal financial objectives and make smart financial decisions that help them achieve their goals. It offers essential skills and knowledge that will set students on the road to lifelong financial wellness. General Education/Societies and Individuals. For non-business students only.

BUSS 224 Business and Sustainability 3 cr.
Setting the foundation for understanding sustainability in the business context, this course takes students on a comprehensive journey through the principles of sustainable business practices. It emphasizes the importance of integrating sustainability into the core strategy of companies to achieve the triple bottom line. With a blend of historical insights, theoretical frameworks, and contemporary case studies, the course explores how businesses across various sectors are leading the charge in sustainable innovation. Through a community-engaged and experiential learning approach, students will connect theory with practice by collaborating on real-world sustainability challenges. Students will critically examine the roles and responsibilities of businesses, both broadly and through the lens of Environmental, Social, and Governance (ESG) factors, which together provide a comprehensive framework for advancing sustainability, promoting environmental conservation, social equity, and economic prosperity. Beyond environmental and social impact, the course introduces ESG fundamentals and how these shape business decisions, investor expectations, and regulatory requirements. Students will explore how leadership accountability and ethical decision-making support companies in meeting their sustainability goals and creating long-term value. General Education/ Community Engaged Learning course.

BUSS 230 Managerial Economics 3 cr.
Managerial Economics is the use of economic theory and mathematical and statistical techniques in order to examine how a firm can make economic decisions given the constraints it faces. Topics covered include: goals of the firm, marginal analysis, demand theory and estimation, time series and forecasting, theory of production and estimation, cost theory and estimation, pricing and output determination under different market structures, game theory, and pricing in practice. Business majors only. Prerequisites: ECON 211 and BUSS 200.

BUSS 235 Macro Business Analysis 3 cr.
A course that combines theory with cases that require group work and discussions. The theoretical part of this course covers monetary, fiscal and exchange rate policy, and an overview of economic development strategies. Cases are used to train students in developing rigorous arguments to analyze interactions between firms in domestic as well as global economic scenarios. Business majors only.
Prerequisite: ECON 212.

BUSS 239 Business Communication Skills Workshop 0 cr.
A twelve-hour workshop designed to introduce students to the various communication skills needed in a typical work environment. Mastering these skills plays a profound role in shaping and advancing professional careers in all types of industries and work scopes. The workshop introduces specific guidelines for the effective use of a variety of communication skills in the workplace in an interactive manner that simulates the work environment. Business majors only.

BUSS 245 Internship/Practicum 1 cr.
A summer period of guided work experience under faculty supervision by a mentor and corporate guidance by a preceptor, designed to acquaint students with the world of work and help them acquire core values and basic skills necessary for an understanding of the global economy. Business majors only. Prerequisites: FINA 210 or FINA 211, MNGT 215, MKTG 210, INFO 200. Business majors only. Junior or senior standing.

BUSS 246 Honors Seminar in Business 3 cr.
A tutorial research course that can be counted towards any undergraduate concentration. This course involves directed readings and emphasizes individual, original, and independent research in any business-related area. This course requires, among other things, the students to prepare an honors research paper under the supervision of one or more faculty members in the particular area of concentration. The honors paper is normally presented at a school seminar. Prerequisite: approval of track convener.

BUSS 247 Project 3 cr.
A practicum course that can be counted for any undergraduate concentration. This course focuses on analysis of contemporary business issues and problems. The project requires, among other things, the students to work on a problem faced by one of the local or regional businesses, and recommends a set of possible solutions under the supervision of one or more faculty members in the particular area of concentration. The results of the project are normally presented in a meeting in the presence of representatives from the business subject to the consulting assignment. Business majors only. Prerequisite: approval of course instructor.

BUSS 249 Strategic Management 3 cr.
Strategic Management is the capstone business course. It covers the three pillars of the strategic management process: analysis, formulation, and implementation of strategies. It helps students acquire the skills needed to conduct comprehensive internal and external analyses to identify the strengths and weaknesses of an organization, as well as the opportunities and threats in its external environment. In other words, students will learn how to assess the resources, capabilities, and core competencies of an organization, understand the parameters of the industry in which it operates, and accordingly capitalize on opportunities in its macroenvironment to achieve a sustainable competitive advantage. Moreover, the course covers the formulation of corporate, business, and functional level strategies, and what it takes to implement these strategies successfully. Multiple case studies covering various industries will help students bridge the gap between the theoretical frameworks and the application of these frameworks in real life business situations. Business majors only. Prerequisites: ACCT 215, FINA 210 or FINA 211, MNGT 215, MKTG 210, INFO 200, and DCSN 200.

BUSS 253 Critical Thinking Skills Development Workshop 0 cr.
A twelve-hour workshop designed to equip business students with the critical thinking skills necessary to navigate the complexities of the business world. Through a combination of hands-on activities and real-world case studies, participants will learn to analyze problems, evaluate solutions, and make decisions with clarity and confidence. Emphasizing practical applications and collaborative learning, this workshop aims to foster a mindset of inquiry and analysis. Business majors only. Senior standing. Prerequisites: ACCT 215, BUSS 200, FINA 210 or FINA 211, MNGT 215, MKTG 210, INFO 200, DCSN 200, and instructor's approval.

BUSS 255 CO-OP Education 3 cr.
A 6-month work experience integrated to the BBA curriculum that includes a systematic approach for filling pre-professional work assignments, mentored by an OSB faculty and supervised by a corporate preceptor. The course is designed to provide students with practical experience and help them develop an understanding of core business values as well as acquire practical skills necessary to excel in today's dynamic and challenging business environment. Business majors only. Prerequisites: ACCT 210 or ACCT 211, CMPS 208, ECON 211, ECON 212, and four courses of the following: FINA 210 or FINA 211, MKTG 210, MNGT 215, DCSN 200, INFO 200, BUSS 200.

BUSS 256 Advanced CO-OP Education 3 cr.
A 6-month work experience integrated to the BBA curriculum that includes a systematic approach for filling pre-professional work assignments, mentored by an OSB faculty and supervised by a corporate preceptor. The course is designed to provide students with advanced practical experience and help them develop deeper understanding of core business values as well as enhance their acquired practical skills necessary to excel in today's dynamic and challenging business environment. Business majors only. Prerequisites: BUSS 255, and all of the following courses: FINA 210 or FINA 211, MKTG 210, MNGT 215, DCSN 200, INFO 200, BUSS 200.

Management, Marketing, and Entrepreneurship Track

Entrepreneurship Courses

ENTM 220 Entrepreneurship and Business Planning 3 cr.
In this course, students learn about innovation, entrepreneurship, and the lean startup in an experiential manner. Teams pursue their own innovative business idea based on the lean startup concepts, where they build on the design thinking methodology and interview potential customers in order to formulate a business plan, build a prototype, and test it for their new venture. Teams will be ideally composed of a mix of students coming from business, technical, and art majors to work together on developing creative, technically feasible, human-centered, and financially feasible ventures. General Education/ Societies and Individuals course. Senior standing.

ENTM 221 Entrepreneurial Mindset 3 cr.
This course will expose students to many of the topics currently dominating the study of entrepreneurship. These may include theoretical perspectives on the economic and social function of entrepreneurs, psychological and cognitive aspects of entrepreneurs, the intersection of opportunities and enterprising individuals, the decision to exploit, and the new venture creation process. This course is designed for students who wish to understand entrepreneurship from a deeper and more theoretical perspective than practitioner guidance. Prerequisite: MNGT 215.

ENTM 225/MNGT 235 Business Environment of the Firm 3 cr.
This course focuses on macro-organizational theories and their applications to analyze a firm's environment. Students will be introduced to system theory, institutional theory, and identity theory. Then students will learn how to apply external analysis tools such as Porter 5 forces, strategic grouping, and PESTEL. After taking this course, students are expected to have a clear understanding of the impact of the environment on organizations and to identify macro disruptors as threats or opportunities. This course will train students to think strategically about opportunities in their environments. Prerequisite: MNGT 215. Students cannot receive credit for both ENTM 225 and MNGT 235.

ENTM 230 Decision-Making Skills for Entrepreneurs 3 cr.
In this course, students will gain various decision-making skills that are relevant to the field of entrepreneurship and will utilize various Artificial Intelligence (AI) tools that will help them, as entrepreneurs, make a number of decisions and confront a variety of problems, from financial management and client acquisition to product creation and marketing techniques. Students will also reflect on the strengths and weaknesses of AI in entrepreneurship as well as examine its ethical implications and impact on accuracy, productivity, and efficiency. Prerequisite: senior standing.

ENTM 232/FINA 232 Real Estate Management 3 cr.
This course is designed to give students a general overview of the real estate space. Topics include an introduction to real estate markets (sources of demand), real estate finance, project evaluation, elements of real estate law, appraisals, property development, and property management. Business majors only. Prerequisite: FINA 210 or FINA 211. Students cannot receive credit for both ENTM 232 and FINA 232.

ENTM 235 Family Business: Issues and Solutions 3 cr.
A course that focuses on family businesses: their importance, structure, governance, management, and challenges; issues of succession, inheritance, family versus non-family management, and rivalry between siblings, cousins or across generations. Business majors only. (Offered in fall term only). Prerequisite: MNGT 215.

ENTM 236/FINA 236 Entrepreneurial Finance 3 cr.
This course aims to take the students through the various stages of financing new venture deals, from inception to startup to harvest. The course teaches students how to identify new venture financing needs and corresponding financing sources. The course also examines new venture valuation techniques. From the investor's perspective, the course is designed to enable improved investment and financing decisions in entrepreneurial settings. From the viewpoint of the entrepreneur, it will examine financial planning and forecasting, evaluation of alternative sources of financing, venture capital, and basic company valuation. Business majors only. Prerequisite: FINA 210 or FINA 211. Students cannot receive credit for both ENTM 236 and FINA 236.

ENTM 240 Social Entrepreneurship 3 cr.
A social enterprise is a hybrid organization that applies commercial strategies and uses market mechanisms to solve social issues. This course provides a foundation for students to understand social entrepreneurship. It reviews various schools of thought and perspectives on social entrepreneurship's role in tackling social issues, while covering concrete tools for students to begin to engage communities, identify a problem, and develop an innovative solution. Junior or senior standing.

ENTM 241/FINA 241 Venture Capital Management 3 cr.
This course provides the students with conceptual and practical knowledge about key operating and strategic aspects of an entrepreneurial business start-up, from inception to IPO. It covers operating and strategic issues including the development of a business plan and new venture strategies, the impact of marketing methods on financial requirements, the assessment and staging of the financing needs of the venture, sources of finance, advantages and drawbacks, valuation methods, IPO prerequisites and constraints, organizational design, along with harvesting alternatives. Business majors only. Prerequisite: FINA 210 or FINA 211. Students cannot receive credit for both ENTM 241 and FINA 241.

ENTM 250 Special Topics 1, 2 or 3 cr.
A course that deals with special issues and concerns in entrepreneurship not included in regular courses. This course may be repeated for credit when topics vary. Prerequisites vary with the topic and are noted in the course schedule. Credits depend on the course offered. Prerequisite: approval of track convener.

ENTM 251 Entrepreneurship Tutorial 0.5-3 cr.
Tutorials provide opportunities for students to pursue directed study readings and preliminary research relevant to their concentration where existing courses do not offer the required subject matter. Tutorials include a presentation of a report on the work. Prerequisite: approval of track convener.

ENTM 270 Launching a New Venture 3 cr.
This course focuses on technology business venture creation from inception to growth. Drawing on the latest academic research and practitioner insights on high-potential ventures, this course guides students on analyzing opportunities and building new enterprises with a focus on multiple technology domains such as health, communications, security, infrastructure, education, energy, and the environment. Students will gain insights into business model design, the customer development process, customer engagement, marketing and sales, management of operations, financial management, and growth and exit plans. Students will engage with real startups and entrepreneurs whereby they will suggest a new technology venture with a holistic plan to be pitched as a final project at the end of the course. Business majors only. Prerequisites: MNGT 215 and FINA 210 or FINA 211.

ENTM 253 Technical Skills Workshop in Entrepreneurship and Innovation 0 cr.
A twelve-hour workshop designed to provide insights into emerging trends and teach how to leverage specific tools, technologies, or methodologies in the field of Entrepreneurship. This workshop aims to enhance technical skill sets, fostering a higher level of proficiency and efficiency in the future career. Entrepreneurship and Innovation concentration only. Junior standing.

Management Courses

MNGT 215 Fundamentals of Management and Organizational Behavior 3 cr.
This course introduces students to the field of management and familiarizes them with managerial and leadership skills relevant across diverse contexts. It integrates traditional and contemporary management theories with real-world applications, using critical analysis of scenarios and case studies. Students will engage with the four functions of management - planning, organizing, leading, and controlling - through the exploration of key managerial topics including organizational strategy and structure, decision-making, leadership and motivation, and team management and communication. General Education/ Societies and Individuals. course. Corequisite: ENGL 204 or ENGL 206.

MNGT 218 Advanced Topics in Organizational Behavior 3 cr.
This course provides an advanced perspective of the field of organizational behavior and management. Students will achieve an understanding of individual and group behavior in the workplace, and of what makes an organization function. A focus is placed on current management challenges in relation to individuals and interactions in organizations, and systems of work organization. The course illustrates the relevance of organizational behavior theory for practice through creating sustainable workplaces. Specific topics include motivation at work, promoting well-being, fairness and justice at work, leadership, organizational design, change management, and sustainable human resource management. Business majors only. Prerequisites: MNGT 215 and ENGL 204 or ENGL 206.

MNGT 220 Human Resource Management 3 cr.
This course introduces the principles of human resource management. It helps students acquire the basic HRM concepts and equips them with the tools necessary for the effective management of people in organizations. Main topics covered include strategic HRM, planning and staffing, training and development, performance management, compensation, career management and global HRM. Business majors only. (Offered in fall term only). Business majors only. Prerequisites: MNGT 215 and ENGL 204 or ENGL 206.

MNGT 222 HR Analytics 3 cr.
Data analytics, in general, is no longer about discovering interesting statistics and presenting them to business executives. In this era, big data is an important topic, enabling both tactical and strategic decision-making in every aspect of a business. In particular, the function of people analytics, which entails using data analytics tools to measure, report, and understand employee matters (from hire to exit, through learning and performance), is undergoing a major shift. This course will equip students with an inquisitive approach to analyzing people data within the workplace and studying the impact of the analyzed data on the overall organization. Students will learn how people analytics can help managers, executives, and HR professionals optimize employee value and drive effectiveness and efficiency in the employee's experience. Students are not required to have a background in data analytics to take this course; the first module will provide an overview of the foundation for using and statistically analyzing data that they will build on throughout the course. Business majors only. Prerequisites: BUSS 200, MNGT 215, and ENGL 204 or ENGL 206.

MNGT 223 Cross Cultural Management 3 cr.
The purpose of this course is to prepare students for professional life in the modern connected world. This course provides an opportunity to practice a collection of cross-cultural business tools through hands-on experiential activities in which students will work in a multi-cultural team. Students will develop an individual cross-cultural competency in the global business context and build the skills they need to communicate, problem-solve and collaborate in a global team environment—all essential 21st century skills. Business majors only. Prerequisites: MNGT 215 and ENGL 204 or ENGL 206.

MNGT 224 Leadership in Organizations 3 cr.
In the fast-paced and ever-changing landscape of today's organizations, effective leadership is paramount. This course offers a comprehensive exploration of leadership within the context of modern workplaces. The course also explores issues around managing people and teams in the contemporary workplace. Students will delve into the multifaceted nature of leadership, examining its complexities, challenges, and opportunities. The course begins by framing leadership analysis, highlighting the inherent problems and complexities that leaders encounter in dynamic organizational environments. Students develop a nuanced understanding of the factors influencing contemporary leadership dynamics. Business majors only. Prerequisites: MNGT 215 and ENGL 204 or ENGL 206.

MNGT 227 Managing Change in Organizations 3 cr.
Organizations today are characterized by increasing levels of complexity, uncertainty, and change. Organizations are increasingly faced with the need to adapt to change, and managers today must understand the various challenges, opportunities, and implications of these contexts to workplace dynamics, organizational performance, and sustainability. This course provides students with an understanding of what change is about, as well as perspectives on change management. The primary aim is to equip managers, leaders, consultants, and advisers with the requisite skills to navigate the complexities of organizational change effectively. Business majors only. Prerequisites: MNGT 215 and ENGL 204 or ENGL 206.

MNGT 228 Contemporary Issues in Management and Organization 3 cr.
This course addresses contemporary issues in management theory and practice. The course reflects on the relevance of various management and organization topics in the context of the historical evolution of work and the employment relationship. The course also focuses on implications for employee attitudes and behaviors, and for organizations. The main topics include organizational culture, technology at work, change management, the social and psychological contracts of work, work-life balance, emotions at work, and workplace wellbeing. Business majors only. Prerequisites: MNGT 215 and ENGL 204 or ENGL 206.

MNGT 230 International Business 3 cr.
A course on the management function in a global economy. Topics covered include substantive and stylistic challenges for senior and middle management in international cross continent corporations and conglomerates, standardization and diffusion of authority and operations, mobility and self-reinvention, integration, and differentiation. Business majors only. Prerequisites: MNGT 215 and ENGL 204 or ENGL 206.

MNGT 231 Judgment & Decision Making 3 cr.
Judgment and decision-making are at the very core of the manager's responsibility, but managers often make non-rational decisions. In this course students will learn about how managers and executives should make decisions as well as how they actually do make decisions. We explore the psychological and social forces that derail our rational thinking. The course also helps students identify where poor decision-making is likely to occur and provides tools necessary to combat non-rational decision-making in themselves and in others. Business majors only. Prerequisites: MNGT 215 and ENGL 204 or ENGL 206.

MNGT 233 Gender work and Inclusive Systems 3 cr.
This course raises awareness and deepens understanding of the significant role of gender and diversity in contemporary work organizations. It offers multiple perspectives to analyze issues of gender and diversity at the levels of identity, organizational practices, and society. The course is designed to provide students with the necessary analytic tools to deepen their grasp of the challenges of building more inclusive workplaces by drawing from different foundational perspectives including: managerial, social justice, and critical-feminist. The course provides variant rationales for building these more inclusive systems. Prerequisite: ENGL 204 or ENGL 206.

MNGT 234 Training and Development 3 cr.
This course introduces students to the theories, application, and skills development aspects of training and development. Students will learn how to assess training needs, design, and develop training materials, implement, and evaluate a training program from concept to application. In this regard, all concepts of training, including total needs' assessment, employees and trainees' learning motivation, knowledge transfer theories as well as training evaluation methods will be covered. Furthermore, the course provides a deep understanding of how training and development is integrated into the overall organizational strategy. Finally, students will develop their training abilities and skills by preparing and delivering short presentations and working on small projects to apply the basic theories related to the topic. Business majors only. Prerequisites: MNGT 215 and ENGL 204 or ENGL 206.

MNGT 235/ENTM 225 Business Environment of the Firm 3 cr.
This course focuses on macro-organizational theories and their applications to analyze a firm's environment. The course will introduce students to system theory, institutional theory, and identity theory. Then students will learn how to apply external analysis tools such as Porter 5 forces, Strategic Grouping, and PESTEL. After taking this course, students are expected to have a clear understanding of the impact of the environment on organizations and to identify macro-disruptors as threats or opportunities. This course will train students to think strategically about opportunities in their environments. Prerequisite: MNGT 215 and ENGL 204 or ENGL 206. Students cannot receive credit for both ENTM 225 and MNGT 235.

MNGT 250 Special Topics 1, 2 or 3 cr.
A course that deals with special issues and concerns in management not included in regular courses. This course may be repeated for credit when topics vary. Prerequisites vary with the topic and are noted in the course schedule. Credits depend on the course offered. Business majors only. Prerequisite: approval of track convener.

MNGT 251 Management Tutorial 0.5-3 cr.
Tutorials provide opportunities for students to pursue directed study readings and preliminary research relevant to their concentration where existing courses do not offer the required subject matter. Tutorials include a presentation of a report on the work. Business majors only. Prerequisite: approval of track convener.

MNGT 253 Technical Skills Workshop in Management 0 cr.
A twelve-hour workshop designed to provide insights into emerging trends and teach how to leverage specific tools, technologies, or methodologies in the field of management. This workshop aims to enhance technical skill sets, fostering a higher level of proficiency and efficiency in the future career. Management and Organization Concentration only. Junior standing.

Marketing Courses

MKTG 210 Principles of Marketing 3 cr.
This course provides a basic exploration of strategic marketing, covering key concepts and contemporary practices across diverse settings. It delves into the application of modern marketing principles in product and service industries across enterprises of varying sizes, including analysis of buyer behavior, market segmentation and positioning, and development of the marketing mix elements. Corequisite: ENGL 204 or ENGL 206.

MKTG 221 Marketing Insights and Analytics 3 cr.
In today's fast-evolving marketing landscape, success hinges on harnessing the power of data. This course delves into the dynamic world of marketing insights and analytics, providing students with a comprehensive understanding of marketing research principles and techniques while emphasizing contemporary practices in analytics. Students will gain a holistic understanding and practical application of how data-driven insights serve as the cornerstone of informed decision-making in marketing strategy development and execution. Business majors only. Prerequisites: MKTG 210, BUSS 200, and ENGL 204 or ENGL 206.

MKTG 225 Strategic Brand Management 3 cr.
This course takes a customer-centric approach to explore and identify the ingredients for building, managing, and communicating inspiring brands. Topics covered include understanding the functions of a brand, positioning and crafting the brand image, measuring brand equity, and creating an effective communication strategy. Business majors only. Prerequisites: MKTG 210 and ENGL 204 or ENGL 206. Students cannot receive credit for both MCOM 217 and MKTG 225.

MKTG 227 Digital Marketing Strategy 3 cr.
This course delivers the frameworks and tools needed to design and implement a successful digital marketing strategy that achieves business objectives. Topics covered include social media and web analytics, influencer marketing, online campaigning, and online customer relationship marketing. Business majors only. Prerequisites: MKTG 210 and ENGL 204 or ENGL 206.

MKTG 231 Customer Experience Design 3 cr.
All customer-brand interactions involve experiences, good or bad. Successful companies like Apple, Starbucks, Netflix etc. strive to create holistic experiences for customers that include emotive, sensory, identity value to create strong and enduring customer-brand bonds, which are difficult for competitors to copy or break. Customer experience is an all-encompassing term that goes beyond traditional definitions of marketing, customer service, customer satisfaction, and loyalty. This course builds on and extends traditional marketing principles to enable students to develop compelling customer and brand experiences. Business majors only. Prerequisites: MKTG 210 and ENGL 204 or ENGL 206.

MKTG 235 Retailing and Merchandising 3 cr.
This course examines the opportunities and problems faced by marketers in contemporary retail formats. The principle issues involved in retailing are explored, including store location and layout, merchandise planning, buying and selling, category management, and coordination of store activities. Overall, the course allows students to develop appropriate skills and knowledge for effective and efficient decision-making in the contemporary retail environment. Business majors only. Prerequisites: MKTG 210 and ENGL 204 or ENGL 206.

MKTG 238 Public Relations 3 cr.
In this dynamic course, students delve into the exciting world of PR, exploring the strategic communication practices used to build and maintain positive relationships between organizations and their publics, along with managing brand reputation. Students will gain a comprehensive understanding of the evolving PR landscape, encompassing traditional and digital media, social media, crisis communication, and ethical considerations. Business majors only. Prerequisites: MKTG 210 and ENGL 204 or ENGL 206.

MKTG 240 Consumer Behavior 3 cr.
A course that focuses on the customer as the key to market success. Topics covered include the roles of a customer, market values a customer seeks, determinants of customer behavior, the customer's mindset, customer decision-making and customer-focused marketing. Business majors only.
Prerequisites: MKTG 210 and ENGL 204 or ENGL 206.

MKTG 241 Luxury and Fashion Brand Marketing 3 cr.
Combining strategy and style, this course aims to equip a new generation of brand leaders with a deep understanding of the practice, passion, and impact of the luxury and fashion industries. Through theory and practice, students will understand the luxury brand world and its evolution, identify luxury and fashion customer profiles and behavior, and create luxury and fashion brand identity and desire. The learning plan will enable students to create desire and purpose, balance brand and performance, design for inclusivity and sustainability, and respond to fashion futures. Business majors only.
Prerequisites: MKTG 210 and ENG 204 or ENGL 206.

MKTG 242 Digital Content Creation for Business 3 cr.
This course provides students with the knowledge and tools needed to develop and produce the content required to activate a business's online brand strategy. This hands-on course is interdisciplinary and will cover: Understanding content objectives, briefs, and calendars, picking the right medium, and producing multimedia content including videos, photos, visuals, and copywriting. Business majors only.
Prerequisites: MKTG 210 and ENGL 204 or ENGL 206.

MKTG 250 Special Topics 1, 2 or 3 cr.
A course that deals with special issues and concerns in marketing not included in regular courses. It may be repeated for credit when topics vary. Prerequisites vary with the topic and are noted in the course schedule. Credits depend on the course offered. Business majors only. Prerequisite: approval of track convener.

MKTG 251 Marketing Tutorial 0.5-3 cr.
Tutorials provide opportunities for students to pursue directed study readings and preliminary research relevant to their concentration when existing courses do not offer the required subject matter. Tutorials include a presentation of a report on the work. Business majors only. Prerequisite: approval of track convener.

MKTG 253 Technical Skills Workshop in Marketing 0 cr.
A twelve-hour workshop designed to provide insights into emerging trends and teach how to leverage specific tools, technologies, or methodologies in the field of marketing. This workshop aims to enhance technical skill sets, fostering a higher level of proficiency and efficiency in the future career. Marketing concentration only. Junior standing.

Finance, Accounting, and Managerial Economics Track

Accounting Courses

ACCT 210 Financial Accounting 3 cr.
An introduction to financial accounting that covers the use, interpretation and analysis of the principal financial statements and other sources of financial information from a national and international perspective. This course includes a zero-credit lab to enhance student engagement and performance in financial accounting through interactive activities such as problem-solving, case studies, simulations, and financial statement analysis. Engineering students must only register in ACCT 211 instead of ACCT 210.

ACCT 211 Financial Accounting for Engineers 3 cr.
This course introduces engineering students to the principles of financial accounting, emphasizing the interpretation and analysis of financial statements. Topics include income statements, balance sheets, cash flow statements, and financial accounting concepts relevant to engineering projects. Students will gain practical skills to assess financial performance and make informed economic decisions within technical and industrial environments. Engineering majors only.

ACCT 215 Management Accounting 3 cr.
A course that covers the use, interpretation, and analysis of management accounting information for management decision-making, planning, and control of operations. The focus is on cost behavior, cost measurement, budgeting, performance measurement and evaluation, responsibility accounting and product costing. Business majors only. Prerequisite: ACCT 210 or ACCT 211.

ACCT 217 Strategic Managerial Accounting 3 cr.
In-depth coverage of topics such as value chain analysis, activity-based costing, JIT systems, analysis of firm's cost structures, and the provision and use of information for strategic decisions. A rigorous analysis of some widely-used financial and non-financial measures, such as return on investment, EVA and the balanced scorecard is also undertaken. Business majors only. Prerequisite: ACCT 215.

ACCT 221 Intermediate Financial Accounting I 3 cr.
This course develops an in-depth understanding of the theory of accounting, traditional financial accounting topics, conceptual framework, major financial statements form and content, accounting systems, and valuation. It also covers recent developments in financial reporting and measurement practices as promulgated by the leading professional accounting organizations and applied by practitioners in public accounting and industry. Business majors only. (Offered in fall term only). Prerequisite: ACCT 210 or ACCT 211.

ACCT 222 Cost Accounting 3 cr.
A course on accounting in manufacturing operations; cost concepts and classifications; cost accounting cycle; accounting for materials, labor, and burden; process cost accounting; budgeting; standard costs; cost reports; direct costing and differential cost analysis; cost volume-profit analysis and gross profit analysis. Business majors only. Prerequisite: ACCT 215.

ACCT 223 Intermediate Financial Accounting II 3 cr.
Continuation of ACCT 221. This course covers financial reporting issues relating to liabilities, ownership equity, selected financial reporting issues, and financial reporting disclosure. Business majors only. (Offered in spring term only). Prerequisite: ACCT 221.

ACCT 230 Introduction to External Auditing 3 cr.
An introduction to auditing and the professional responsibilities of a career in accounting. Topics include the legal and ethical responsibilities of accountants; professional auditing standards; international auditing standards; acquisition, evaluation, and documentation of audit evidence; reports on the results of the engagement, evaluation in internal control, compliance testing, substantive testing, and statistical sampling and auditing EDP. Business majors only. Junior standing. Corequisite: ACCT 221.

ACCT 231 Fraud Examination and Internal Audit 3 cr.
A course on fraud examination and internal audit. This course covers concepts and topics of fraud detection, deterrence, and prevention; types of financial statement and occupational fraud; and investigation and interviewing techniques. It also covers functions of internal audit, audit committees and corporate governance, planning and performing the internal auditing engagement, and coordination of internal auditing and external auditing. Business majors only. Prerequisite: ACCT 215.

ACCT 232/INFO 232 Accounting Information Systems 3 cr.
A course that explores in detail several typical Accounting Information System (AIS) application subsystems, such as order entry/sales, billing/receivables/cash receipts, inventory, purchasing/accounts payable/cash disbursements, payroll, and materials planning/production. This course includes understanding, documenting, designing, using, and auditing these application subsystems. Business majors only. Prerequisites: ACCT 210 or ACCT 211 and INFO 200. Students cannot receive credit for both ACCT 232 and INFO 232.

ACCT 235 Taxation 3 cr.
A study of the Lebanese tax code and its application as it relates to individuals and various tax entities. The course provides an introduction to tax planning according to tax regulations and legislation. It also gives an overview of the US tax system as well as various international tax developments (multilateral tax agreements, BEPS, CRS, E-services taxation, etc.). Business majors only. Prerequisite: ACCT 210 or ACCT 211.

ACCT 240 Fund Accounting 3 cr.
A course that provides an alternative perspective of accounting that meets the needs of not-for-profit and governmental organizations. This course involves the interpretation and use of fund accounting as a means of reporting and controlling activities. Business majors only. Prerequisite: ACCT 215.

ACCT 241 Profit Planning and Budgeting Control 3 cr.
A broad view of profit planning and control. Topics covered include sales planning and control, planning production, materials purchase and usage, planning and controlling direct labor costs and overhead, planning expenses, planning and controlling capital expenditures, and completion and application of the profit plan. Business majors only. Prerequisite: ACCT 215.

ACCT 246 International Accounting 3 cr.
This course covers accounting and auditing related issues from both international and US perspectives. It provides a comparative coverage of accounting and auditing topics under both sets of standards. Business majors only. Prerequisite: ACCT 215.

ACCT 248/FINA 248 Financial Statement Analysis 3cr.
A course that covers the relevance and process of accounting and financial analyses within the broader theme of business analysis. The focus is on informational role of accounting, the quality of reporting, the analysis of financing, investing, and operating activities, as well as of different aspects of an entity's financial performance and financial position – all towards the ultimate purpose of informed decision-making. Business majors only. Prerequisite: ACCT 210 or ACCT 211. Students cannot receive credit for both ACCT 248 and FINA 248.

ACCT 250 Special Topics 1, 2 or 3 cr.
A course that deals with special issues and concerns in accounting not included in regular courses. This course may be repeated for credit when topics vary. Prerequisites vary with the topic and are noted in the course schedule. Credits depend on the course offered. Business majors only. Prerequisite: approval of track convener.

ACCT 251 Accounting Tutorial 0.5-3 cr.
Tutorials provide opportunities for students to pursue directed study readings and preliminary research relevant to their concentration where existing courses do not offer the required subject matter. Tutorials include a presentation of a report on the work. Business majors only. Prerequisite: approval of track convener.

ACCT 253 Technical Skills Workshop in Accounting 0 cr.
A twelve-hour workshop designed to provide insights into emerging trends and teach how to leverage specific tools, technologies, or methodologies in the field of accounting. This workshop aims to enhance technical skill sets, fostering a higher level of proficiency and efficiency in the future career. Accounting concentration only. Junior standing.

Finance Courses

FINA 210 Business Finance 3 cr.
This course teaches the tools that determine and analyze the major decisions a financial manager has to make, including identification of the firm's goals, time value of money, use of discount cash flow models, capital budgeting under certainty, capital structure as it relates to cost of capital, dividend policy, and ethics in finance. Engineering students must only register in FINA 211 instead of FINA 210. Prerequisite: ACCT 210 or ACCT 211.

FINA 211 Introduction to Finance for Engineers 3 cr.
This course introduces basic principles of finance to engineers and provides practical tools for financial decisions and valuation in a corporate context, including financial statement analysis, valuation, capital budgeting under uncertainty, cost of capital, capital structure, dividend policy, lease finance, options, and acquisition. Engineering majors only. Prerequisite: ACCT 210 or ACCT 211.

FINA 215 Financial Markets and Institutions 3 cr.
This course provides students with a broad understanding of the functioning of financial markets and explores the determinants of interest rates and their impact on asset pricing. The course also explores the roles and functions of financial institutions and intermediaries such as commercial banks, investment banks, mutual funds, pension funds and insurance companies; additionally, the course briefly tackles the types of risks each of these institutions face. Business majors only. Prerequisite: FINA 210 or FINA 211.

FINA 218 Risk Management in Financial Institutions 3 cr.
This course focuses on managing risk in the context of the Basel accords. Emphasis is placed on the identification, measurement, and management of risk at financial institutions. An overview of the Basel Accords is provided along with computations of capital requirements taking into consideration market, credit, and operational risk. Basic quantitative, legal, and accounting tools are used. Business majors only. Prerequisite: FINA 210 or FINA 211.

FINA 220 Investment Management 3 cr.
A study of the operations of securities markets, investment policies, valuation of individual securities and techniques of investing in securities. This course also introduces students to analysis of investment information, evaluation of risks and returns, and principles of portfolio selection in investment decisions. Business majors only. Prerequisite: FINA 210 or FINA 211.

FINA 221 Fixed Income Securities 3 cr.
The course's primary objective is to equip students with the knowledge and skills to navigate the complexities of fixed-income markets. Students will develop theoretical and practical skills to analyze fixed-income instruments across various market conditions by examining real-world case studies and engaging in hands-on exercises. Therefore, throughout the course, students will delve into the investment spectrum of fixed-income securities, including treasury and corporate bonds, mortgage-backed securities, asset backed securities, floating and variable rate bonds, and other bond instruments. Emphasis will be placed on mastering the analytical techniques for evaluating these securities, including yield curve analysis, duration, convexity measurements, bond rating assessment, and pricing models. Business majors only. Prerequisite: FINA 210 or FINA 211.

FINA 222 Valuation Methods 3 cr.
This course covers techniques used by investment bankers and analysts for enterprise valuation. The techniques used are divided into intrinsic valuation and relative valuation. Intrinsic valuation includes dividend discount models, free cash flow to equity, and free cash flow to firm. Relative valuation measures are price-to-earnings, price-to-sales, price-to-book, and price-to-cash flow. Business majors only. Prerequisite: FINA 210 or FINA 211.

FINA 225 Commercial Bank Management 3 cr.
Defines functions, operations and objectives of commercial banks as compared to other financial institutions. The course studies the management aspects of commercial banks, financial analysis of bank statements, liquidity management, assets and liability management, profitability, capital adequacy, credit analysis, trade finance and banking regulations. Business majors only. Prerequisite: FINA 210 or FINA 211.

FINA 227 Insurance 3 cr.
An operational approach to risk management in business and personal affairs. The major thrust of this course is to introduce students to the various types of insurance contracts including life, health, property, and liability insurance, and how to measure and manage risk. This course also covers reinsurance and the know-how to make the best use of insurance contracts and coverage. Business majors only. Prerequisite: FINA 210 or FINA 211.

FINA 228 Risk Management 3 cr.
This course provides an introduction to the risks faced by financial and nonfinancial institutions. These risks include interest rate, liquidity, operational, market and credit risk. Students will acquire a thorough understanding of the measures of market and credit risk such as Value at Risk (VaR), Expected Shortfall (ES), default probabilities and credit VaR. The course also introduces stress testing, scenario analysis as well as the use of derivatives to hedge risk. Business majors only. Prerequisites: FINA 210 or FINA 211 and senior standing.

FINA 230 International Financial Management 3 cr.
An analysis of the opportunities, problems, and financial decisions confronting multinational companies. The focus of this course is on understanding international regulatory and environment differences, access to money and capital markets, use of derivatives to hedge exchange rate risk, exposure to political risk and other types of risk, and international diversification. Business majors only.
Prerequisite: FINA 210 or FINA 211.

FINA 231 Private Equity 3 cr.
The course provides students with a practical understanding of the private equity industry. Private equity is the study of investing capital in the equity of private companies to fund growth as well as investing in public companies to take them private. The course explores how modern private equity firms raise capital, align interests, conduct due diligence, secure leverage, negotiate deals, execute an investment plan, and exit through an Initial Public Offering or a Merger and Acquisition. The course places particular emphasis on the conduct of private equity in the MENA region and emerging markets. Business majors only. Prerequisite: FINA 210 or FINA 211.

FINA 232/ENTM 232 Real Estate Management 3 cr.
This course is designed to give the students a general overview of the real estate space. Topics include an introduction to real estate markets (sources of demand), real estate finance, project evaluation, elements of real estate law, appraisals, property development and property management. Business majors only. Prerequisite: FINA 210 or FINA 211. Students cannot receive credit for both ENTM 232 and FINA 232.

FINA 234 Real Estate Finance and Investment 3 cr.
This course examines selected issues in real estate finance and investment: techniques for analyzing financial decisions in property development and investment; property income streams, pro forma analysis, equity valuation, taxes, risk types, and sensitivity analysis. It also introduces the fundamentals of mortgage securitization and public markets in real estate securities. Business majors only. Prerequisite: FINA 210 or FINA 211.

FINA 235 Financial Planning 3 cr.
A course that deals with planning and managing personal finance. This course focuses on topics such as the financial planner's role and environment, cash flow budgeting, consumer credit, debt management, insurance, taxation and financial planning, retirement planning, estate planning and wills, personal bankruptcy and insolvency, and preparation of financial plans. Business majors only. Prerequisite: FINA 210 or FINA 211.

FINA 236/ENTM 236 Entrepreneurial Finance 3 cr.
This course aims to take the students through the various stages of financing new venture deals, from inception to startup to harvest. The course teaches students how to identify new venture financing needs and corresponding financing sources. The course also examines new venture valuation techniques. From the investor's perspective, the course is designed to enable improved investment and financing decisions in entrepreneurial settings. From the viewpoint of the entrepreneur, it will examine financial planning and forecasting, the evaluation of alternative sources of financing, venture capital, and basic company valuation. Business majors only. Prerequisite: FINA 210 or FINA 211. Students cannot receive credit for both ENTM 236 and FINA 236.

FINA 240/DCSN 220 Financial Modeling 3 cr.
This course is designed to provide students with the knowledge and skills needed to build, analyze, and interpret financial models. The course will cover essential financial concepts, excel skills, and modeling techniques used in various industries. Students will gain hands-on experience in constructing financial models for decision-making and valuation purposes. The Financial Modeling course establishes a crucial bridge between foundational finance courses and advanced topics within the field. Building on the principles acquired in introductory finance and accounting courses, this specialized course delves into the practical application of financial concepts through the construction and analysis of sophisticated financial models. It complements accounting courses by providing students with a hands-on understanding of how financial statements and forecasting techniques are interwoven in real-world scenarios. Moreover, the course extends the quantitative skills developed in basic mathematics and statistics courses, honing them specifically for financial modeling purposes by introducing valuation techniques, scenario analysis, and the integration of excel and VBA programming. Business majors only. Prerequisites: BUSS 200 and FINA 210 or FINA 211. Students cannot receive credit for both DCSN 220 and FINA 240.

FINA 241/ENTM 241 Venture Capital Management 3 cr.
This course provides the students with conceptual and practical knowledge about key operating and strategic aspects of an entrepreneurial business start-up, from inception to IPO. It covers operating and strategic issues including the development of a business plan and new venture strategies, the impact of marketing methods on financial requirements, the assessment and staging of the financing needs of the venture, sources of finance, advantages and drawbacks, valuation methods, IPO prerequisites and constraints, organizational design, along with harvesting alternatives. Business majors only. Prerequisite: FINA 210 or FINA 211. Students cannot receive credit for both ENTM 241 and FINA 241.

FINA 244 Derivative Securities 3 cr.
This course introduces the students to the functioning of derivatives markets and the pricing of derivatives contracts. The pricing of contingent claims such as forwards, futures, swaps, and options will be covered in detail. The course also examines how financial institutions use derivatives contracts to hedge risk. Business majors only. Prerequisites: FINA 210 or FINA 211.

FINA 245 Hedge Fund Strategies 3 cr.
This course focuses on the theory and practice of hedge fund management. The class describes some of the main strategies used by hedge funds. The course covers tactical asset allocation across asset classes such as commodities, equities, currencies and fixed income, individual equity investing (discretionary equity investing, short selling, quantitative equity strategies), global macro investing, managed futures strategies, and relative-value strategies (fixed income arbitrage, convertible bond arbitrage, event driven investments). Practical aspects that pertain to the implementation of trading strategies (transaction costs, liquidity risk and performance measurement) as well as “back testing” a trading strategy are also discussed. Business majors only. Prerequisite: FINA 210 or FINA 211.

FINA 246 Corporate Finance 3 cr.
This course provides thorough understanding and analyses, using the case approach, of the financial policies and strategic financial decisions of corporations. The topics covered include project valuation using real options, cost of capital for a multidivisional firm, capital structure and estimation of debt benefits, distribution policy (dividends and buybacks), raising capital (IPOs and SEOs), warrants and convertibles, mergers and acquisitions, leverage buyouts, corporate failure, and restructuring. Business majors only. Prerequisite: FINA 210 or FINA 211.

FINA 248/ACCT 248 Financial Statement Analysis 3 cr.
A course that covers the relevance and process of accounting and financial analyses within the broader theme of business analysis. The focus is on informational role of accounting, the quality of reporting, the analysis of financing, investing, and operating activities, as well as of different aspects of an entity's financial performance and financial position – all towards the ultimate purpose of informed decision-making. Business majors only. Prerequisite: ACCT 210 or ACCT 211. Students cannot receive credit for both FINA 248 and ACCT 248.

FINA 249 Introduction to Sustainable Finance 3 cr.
This course introduces students to the principles of sustainable finance from the perspective of investors and management. Students will learn to critically assess the role of financial markets in promoting sustainable development, effectively integrate environmental, social, and governance (ESG) criteria into financial analyses and decisions, and develop expertise in sustainable investment strategies and products. Topics covered include sustainability challenges, the externalities of firm behavior, the role of governance structures and institutional investors in steering towards sustainable business practices, ESG metrics and data, and the role of financial markets and instruments in the allocation of capital towards sustainable business activities. Students will understand how to align financial practices with the broader objectives of sustainable development. Prerequisite: FINA 210 or FINA 211.

FINA 250 Special Topics 1, 2, or 3 cr.
A course that deals with special issues and concerns in finance not included in regular courses. This course may be repeated for credit when topics vary. Prerequisites vary with the topic and are noted in the course schedule. Credits depend on the course offered. Business majors only. Prerequisite: approval of track convener.

FINA 251 Finance Tutorial 0.5-3 cr.
Tutorials provide opportunities for students to pursue directed study readings and preliminary research relevant to their concentration when existing courses do not offer the required subject matter. Tutorials include a presentation of a report on the work. Business majors only. Prerequisite: approval of track convener.

FINA 253 Technical Skills Workshop in Finance 0 cr.
A twelve-hour workshop designed to provide insights into emerging trends and teach how to leverage specific tools, technologies, or methodologies in the field of finance. This workshop aims to enhance technical skill sets, fostering a higher level of proficiency and efficiency in the future career. Finance concentration only. Junior standing.

Business Information and Decision Systems Track

Business Decision Systems Courses

DCSN 200 Operations Management 3 cr.
An introduction to contemporary operational management issues and techniques. The focus of the course is on the tradeoffs in various decision areas and how operational strategies are aligned with the organization strategy. Some of the main topics include capacity planning, flow time management, inventory management as well as quality management and control. Emphasis is placed on the development and use of quantitative models such as linear programming and decision trees to assist in decision-making. Students are expected to have some prior familiarity with Microsoft Excel.

DCSN 205 Managerial Decision-Making 3 cr.
An introduction to the tools and techniques of modern managerial decision-making, using spreadsheets as a modeling and analysis tool. The course addresses the formulation of models that can be used to analyze complex problems taken from various functional areas of management, including finance, marketing, operations, and human resources. The goal is to understand how business decisions are reached, what tradeoffs are made and how outcomes depend on the underlying data. Decision-making is studied: under certainty (linear, integer and nonlinear programming; networks; project management; and multi-objectives); under uncertainty (decision analysis and decision trees) and under risk (simulation). Software tools such as Microsoft Excel, Excel Solver Add-in, Tree Plan, Risk Solver Platform, and Microsoft Project will be used for hands-on experiences. Business majors only. Prerequisites: MATH 204 and CMPS 208. Junior or senior standing.

DCSN 210 Supply Chain Management 3 cr.
Aims to provide the knowledge and tools necessary to develop, implement and sustain strategies for managing supply chains. The course will focus on both developing conceptual frameworks and using analytical tools for supply chain management. Real business cases will be extensively used. Supply chain concepts and solution techniques using analytical tools will be applied to various supply chain issues. Prerequisite: DCSN 200. Students cannot earn credit for both DCSN 210 and DCSN 214.

DCSN 211 Pricing and Revenue Management 3 cr.
Effective pricing and capacity management offer powerful levers that companies are increasingly using to squeeze more profits in competitive markets. The course focuses, at a tactical level, on how to integrate pricing, sales and product design decisions to extract maximal value from any mismatch between supply and demand. It also introduces pricing and capacity management as a hedging tool in the presence of various risk factors. It is based on model-building and relies on constrained optimization techniques implemented through Excel and Solver. Business majors only. Corequisite: BUSS 200. Junior or senior standing.

DCSN 212 Project Management 3 cr.
Explores technical and managerial challenges of project management in general. The topics addressed in this course range from project selection techniques, project planning, budgeting, risk analysis, resource management to project monitoring and termination. The goal is to understand how project management decisions are reached, what tradeoffs are made, and how outcomes depend on the underlying situation. Decision analysis tools such as linear/non-linear programming and spreadsheet simulation are utilized. Software packages used are Microsoft Project, Risk Solver/Crystal Ball and Excel Solver. Business majors only. Prerequisites: DCSN 200 and BUSS 200.

DCSN 214 Sustainable Supply Chain Management 3 cr.
This course discusses the design and the management of sustainable supply chain processes. The course aims to provide students with an understanding of the sustainability challenges and opportunities facing supply chains today. It presents a general framework that allows an alignment between internal competencies of organizations and their market positioning. It discusses concepts and tools that enable an effective design of a sustainable supply chain network and a better management of resources and logistics. The course is case-based and driven by a balance of qualitative and quantitative approaches. Business majors only. Prerequisite: DCSN 200. Students cannot earn credit for both DCSN 210 and DCSN 214.

DCSN 215 Advanced Managerial Decision-Making Models 3 cr.
Addresses advanced models for decision-making from functional areas of management, including finance, marketing, operations and human resources, through case studies and use of applications software. Business majors only. Prerequisite: DCSN 205.

DCSN 216/INFO 216 Business Analytics Using Data Mining 3 cr.
Introduces applied data mining techniques including data processing and a set of data analytics tools related to predictive modeling such as classification and regression trees, logistic regression, artificial neural networks, and other techniques. Students will learn how to use these tools to provide practical solutions to problems faced by businesses today. They will gain knowledge in how to improve decision-making by adopting a data analytics approach. The course is designed for advanced undergraduate students and features the use of data mining software. Case studies and practical examples will be extensively presented throughout the course. Business majors only. Prerequisite: BUSS 200. Students cannot receive credit for both DCSN 216 and INFO 216.

DCSN 220/FINA 240 Financial Modeling 3 cr.
This course is designed to provide students with the knowledge and skills needed to build, analyze, and interpret financial models. The course will cover essential financial concepts, Excel skills, and modeling techniques used in various industries. Students will gain hands-on experience in constructing financial models for decision-making and valuation purposes. The Financial Modeling course establishes a crucial bridge between foundational finance courses and advanced topics within the field. Building on the principles acquired in introductory finance and accounting courses, this specialized course delves into the practical application of financial concepts through the construction and analysis of sophisticated financial models. It complements accounting courses by providing students with a hands-on understanding of how financial statements and forecasting techniques are interwoven in real-world scenarios. Moreover, the course extends the quantitative skills developed in basic mathematics and statistics courses, honing them specifically for financial modeling purposes by introducing valuation techniques, scenario analysis, and the integration of Excel and VBA programming. Business majors only. Prerequisites: BUSS 200 and FINA 210 or FINA 211. Students cannot receive credit for both DCSN 220 and FINA 240.

DCSN 227 Operations Management II 3 cr.
Building on Operations Management (DCSN 200), the course focuses on the basic concepts, issues, and techniques for efficient and effective operations. Special emphasis is placed on process improvement and resource planning. Topics include operations strategy, location and layout strategies, lean operations, human resources, job design and work measurement, aggregate planning S&OP, Material Requirements Planning (MRP) and Enterprise Resource Planning (ERP), maintenance and reliability, learning curves, and short-term scheduling. By the end of the course, students will have extended knowledge of the key role Operations Management plays in competitive advantage. Students should expect to become familiar with various tools of operations management and the behavioral aspects of managing and planning operations. Further, they will acquire some of the skills necessary to critically analyze a firm's performance from an operational point of view. Business majors only. Prerequisite: DCSN 200.

DCSN 250 Special Topics 1, 2 or 3 cr.
Special issues and concerns in business decision systems not included in regular courses. This course may be repeated for credit when topics vary. Prerequisites vary with the topic and are noted in the course schedule. Credits depend on the course offered. Business majors only. Prerequisite: approval of track convener.

DCSN 251 Decision Systems Tutorial 0.5-3 cr.
Tutorials provide opportunities for students to pursue directed study readings and preliminary research relevant to their concentration where existing courses do not offer the required subject matter. Tutorials include a presentation of a report on the work. Business majors only. Prerequisite: approval of track convener.

DCSN 253 Technical Skills Workshop in Operations Management 0 cr.
A twelve-hour workshop designed to provide insights into emerging trends and teach how to leverage specific tools, technologies, or methodologies in the field of operations management. This workshop aims to enhance technical skill sets, fostering a higher level of proficiency and efficiency in the future career. Operations Management concentration only. Junior standing.

Information Systems Courses

INFO 200 Foundations of Information Systems 3 cr.
Introduces information systems that raise productivity, create customer value and sustain competitive advantage. The course shows how the integration of information technology and information systems in the organization's work processes adds value for the business and its customers. It focuses on the following topical areas: competitiveness, functional information systems, e-commerce and supply chain systems, business intelligence systems and systems development. Junior or senior standing.

INFO 216/DCSN 216 Business Analytics Using Data Mining 3 cr.
Introduces applied data mining techniques including data processing and a set of data analytics tools related to predictive modeling such as classification and regression trees, logistic regression, artificial neural networks, and other techniques. Students will learn how to use these tools to provide practical solutions to problems faced by businesses today. They will gain knowledge in how to improve decision-making by adopting a data analytics approach. The course is designed for advanced undergraduate students and features the use of data mining software. Case studies and practical examples will be extensively presented throughout the course. Business majors only. Prerequisite: BUSS 200. Students cannot receive credit for both DCSN 216 and INFO 216.

INFO 225 Enterprise Systems Design and Implementation 3 cr.
Provides students with a deeper understanding of business processes and enterprise systems. Different cross-functional business processes are covered, with an emphasis on how they interact to successfully deliver the business functions of an enterprise. The concepts in the course are reinforced by the use of Enterprise Resource Planning applications. The course also covers how enterprise data can be used to derive business insights and analytics. The following topical areas are emphasized in the course: business processes and enterprise systems, process integration, systems implementation, and enterprise systems for business analytics. Business majors only. (Offered once a year: either in fall or spring term). Prerequisites: INFO 200 and DCSN 200. Students cannot receive credit for both DCSN 225 and INFO 225.

INFO 226 System Development and Database Design 3 cr.
This course emphasizes the issues facing businesses and management in the development of information systems: properly formulating business problems; targeting appropriate processes and functions; and requisite design and implementation processes. This course also introduces the central role of database management systems (DBMS) and their applications in the business IT/IS environment. Cases and real-life business needs will underscore these issues. Business majors only. (Offered once a year: either in fall or spring term) Prerequisite: INFO 200.

INFO 227 Social Media in Digital Management 3 cr.
Social media technologies (e.g., Instagram, Facebook, LinkedIn) are transforming society and businesses. While companies benefit from direct interaction with customers and a wealth of data that can be leveraged, they must strengthen their organizational agility and pace of coordination between the different departments (sales, marketing, customer service, etc.). The course explains how data from social media can be used to drive business decisions as well as define and enhance strategies. Business majors only. Prerequisites: INFO 200, MKTG 210. Permission of instructor for non-OSB students.

INFO 232/ACCT 232 Accounting Information Systems 3 cr.
A course that explores in detail several typical Accounting Information System (AIS) application subsystems, such as order entry/sales, billing/receivables/cash receipts, inventory, purchasing/accounts payable/cash disbursements, payroll, and materials planning/ production. This course includes understanding, documenting, designing, using, and auditing these application subsystems. Business majors only. Prerequisites: ACCT 210 or ACCT 211 and INFO 200. Students cannot receive credit for both ACCT 232 and INFO 232.

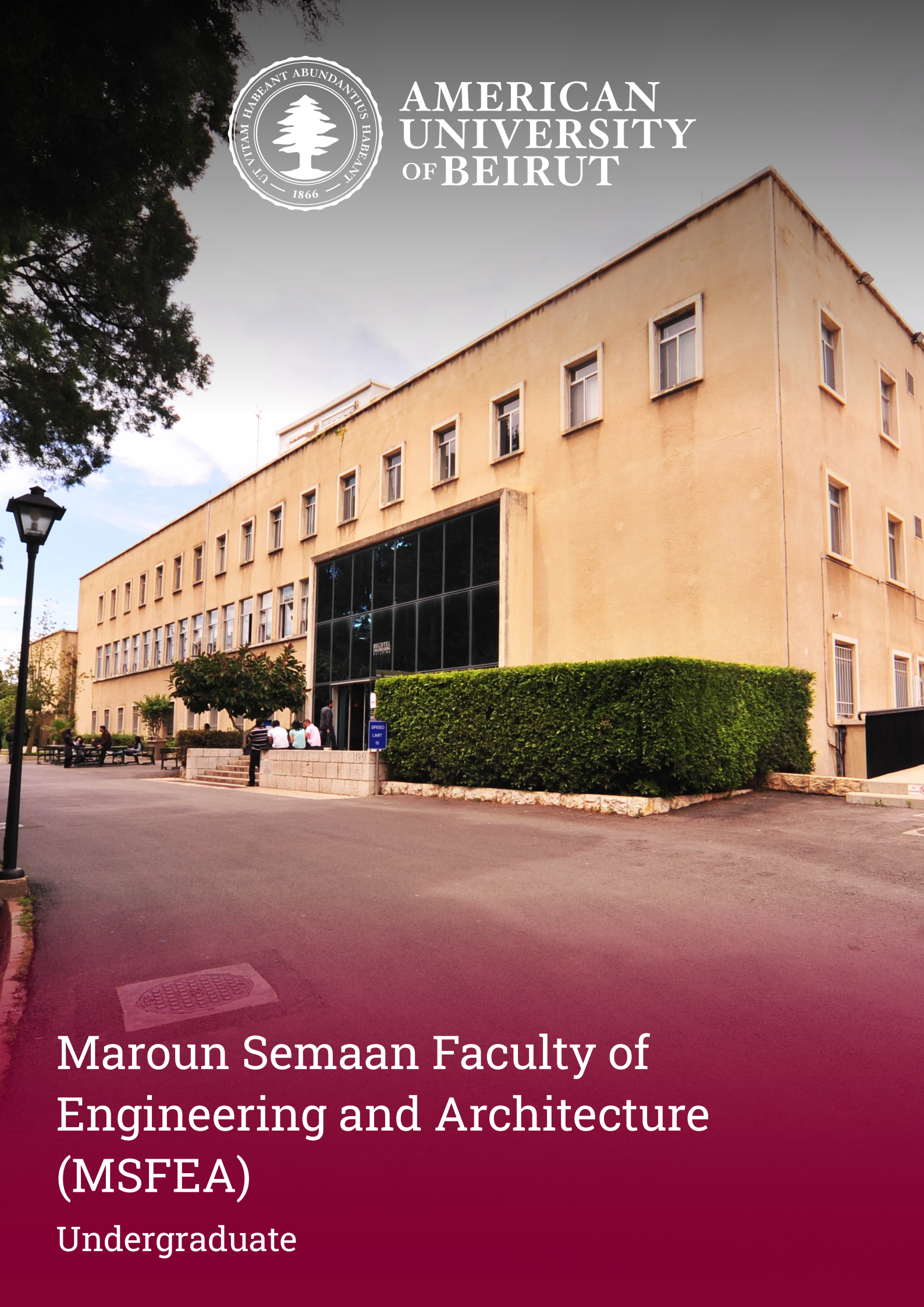
INFO 234 Introduction to Blockchain for Business 3 cr.
This course does not require a technical background and is designed to teach students how to apply blockchain and distributed ledger technologies (DLT) for payments, venture funding, and economic problems such as inflation. Furthermore, the course will show how businesses and institutions can adapt to a world where distributed ledger technologies become increasingly ubiquitous as a core component of financial technology. The aim is for students to understand the technical and economic core concepts, and emerging international policy, and apply blockchain technologies within a business context. Business majors only. Prerequisite: INFO 200.

INFO 235 Introduction to AI for Business 3 cr.
This course is designed to familiarize students with the fundamental concepts and principles of Artificial Intelligence (AI) and how businesses can use this technology to enhance processes and gain a competitive edge. It explains the history and foundation of AI, the landscape of its applications and tackles a few particular topics, mainly: machine learning, deep learning, recommendation engines, and natural language processing. The aim is to teach students how to apply these methods within a business context, using cloud services. The course does not require a technical background. Business majors only.
Prerequisite: INFO 200.

INFO 250 Special Topics 1, 2 or 3 cr.
Special issues and concerns in business information systems not included in regular courses. This course may be repeated for credit when topics vary. Prerequisites vary with the topic and are noted in the course schedule. Credits depend on the course offered. Business majors only. Prerequisite: approval of track convener.

INFO 251 Information Systems Tutorial 0.5-3 cr.
Tutorials provide opportunities for students to pursue directed study readings and preliminary research relevant to their concentration where existing courses do not offer the required subject matter. Tutorials include a presentation of a report on the work. Business majors only. Prerequisite: approval of track convener.

INFO 253 Technical Skills Workshop in Information Systems 0 cr.
A twelve-hour workshop designed to provide insights into emerging trends and teach how to leverage specific tools, technologies, or methodologies in the field of information systems. This workshop aims to enhance technical skill sets, fostering a higher level of proficiency and efficiency in the future career. Information Systems concentration only. Junior standing.



AMERICAN UNIVERSITY OF BEIRUT

Maroun Semaan Faculty of Engineering and Architecture (MSFEA)

Undergraduate

Officers of the Faculty

Fadlo R. Khuri	President of the University
Zaher Dawy	Provost
Alan Shihadeh	Dean
Mahmoud Al-Hindi	Associate Dean
Daniel Asmar	Associate Dean
Riad Chedid	Associate Dean
Imad El Hajj	Associate Dean
Howayda Al-Harithy	Director of the School of Architecture and Design
Bradley Jon Tucker	Vice-Provost and Registrar
Antoine Sabbagh	Director of Admissions
Lokman Meho	University Librarian

Faculty Administrative Support

Alia Kazma Serhal	Student Services Manager
Olga Safa	Financial and Administrative Manager
Sara Jibbaoui	Financial Officer
Arij Hamadeh	Student Services Officer
Aya Wehbe	Contracts Officer

Historical Background

As early as 1913, the university recognized the need for engineering education and training in the Middle East, and courses in this field were offered in the School of Arts and Sciences. By 1944, sufficient additional courses had been added to permit the granting of the degree of bachelor of science in civil engineering. The last class in this program graduated in June 1954. In 1951, a separate School of Engineering was established, and curricula were initiated in civil engineering, mechanical engineering, electrical engineering, and architectural engineering. The years from 1951 to 1954 were a transitional period of continuous development towards the new curricula, which were established in 1954. In 1963, a program leading to the degree of bachelor of architecture was introduced, replacing the bachelor of architectural engineering program, the last class of which graduated in June 1966. In that year, the school was renamed the Faculty of Engineering and Architecture. Since then, curricula have been under constant review with changes introduced as necessary to keep pace with modern technology, conform to sound developments in engineering and architecture education, and meet the evolving needs of the region. In 1986, a new undergraduate major in computer and communications engineering was added within the Department of Electrical and Computer Engineering. In 1992, a new major in graphic design was added within the Department of Architecture and Design leading to a bachelor of graphic design. In 2006, the name of the degree was changed to bachelor of fine arts in graphic design, and the name of the bachelor of engineering in electrical engineering degree was changed to bachelor of engineering in electrical and computer engineering. In 2009, two bachelor of science programs were introduced, the first in construction engineering, housed in the Department of Civil and Environmental Engineering, and the second in chemical engineering, housed in the Department of Mechanical Engineering. A bachelor of engineering program in chemical engineering was simultaneously launched in 2009 with the bachelor of science program. In 2014, a bachelor of engineering program in industrial engineering was introduced. The chemical engineering programs are now housed in the Department of Chemical and Petroleum Engineering, while the industrial engineering program is housed in the Department of Industrial Engineering and Management. The faculty was renamed Maroun Semaan Faculty of Engineering and Architecture in 2017.

In 2019, a bachelor of engineering program in computer science and engineering was started in the Department of Electrical and Computer Engineering.

Accreditation

The bachelor of engineering programs in chemical engineering, civil engineering, computer and communications engineering, electrical and computer engineering, industrial engineering, and mechanical engineering, and the bachelor of science program in chemical engineering are accredited by the Engineering Accreditation Commission of ABET.

Mission

We offer world-class educational programs that prepare students for the engineering, architecture, and design professions. Rooted in the liberal education model, our programs also prepare students to be engaged citizens and leaders, entrepreneurs and researchers who deploy their skills with ingenuity, integrity, and a sense of responsibility towards future generations. Our faculty produces transformative knowledge and technology through internationally-recognized research and design, and seeks to leverage the special contexts of Lebanon and the region to define highly novel and relevant research programs. We impact policy and practice through our alumni and by directly engaging industry, government, and the public at large.

Vision

A viable, livable, and equitable world.

Undergraduate Programs

The Maroun Semaan Faculty of Engineering and Architecture offers programs of study leading to the degrees of bachelor of architecture (BArch), bachelor of fine arts (BFA) in graphic design, bachelor of engineering (BE), with majors in chemical engineering, civil engineering, computer and communications engineering, computer science and engineering, electrical and computer engineering, industrial engineering, and mechanical engineering; and bachelor of science (BS) with majors in chemical engineering and construction engineering. The curriculum of the BArch degree extends over 14 terms (ten 16-week terms and four eight-week summer terms), totaling 192 weeks. Although the program is completed in five calendar years, it is equivalent to a program of six academic years that does not include summers. The curriculum of the BLA degree and of the BE degree and that of the BFA degree are divided into 11 terms (eight 16-week terms and three eight-week summer terms), totaling 152 weeks. This duration is equivalent to five academic years without summers, but the programs are completed in four calendar years. The curriculum of the BS degree extends over eight or nine terms (six 16-week terms and two or three eight-week summer terms).

The faculty reserves the right to make changes to the curriculum, course content, and regulations as it deems appropriate and without prior notice.

Admissions

Admission to First Year

Admission is by selection of a limited number of the most promising, eligible applicants. All candidates for admission to the Maroun Semaan Faculty of Engineering and Architecture must have completed the pre-professional educational requirements of the candidate's country and the approved freshman program in the Faculty of Arts and Sciences of this university as described in this catalogue, or a program recognized as equivalent. The certificates, recognized for admission to the first year in the Maroun Semaan Faculty of Engineering and Architecture, are listed in the Admissions section of this catalogue. Holders of the technical baccalaureate (BT) are only eligible for admission to the same major as that of their BT.

Transfers

Students attending recognized institutions of higher learning, including AUB, may apply for transfer to any of the undergraduate majors in the MSFEA, depending on availability of places and subject to the following conditions. Students admitted to the architecture or graphic design programs can start in the fall term only. Applicants must have:

- Completed the equivalent of the sophomore class at the college or university from which they are transferring.
- Attained a minimum cumulative GPA of 3.0.
- Taken at least 12 credits of math and basic science courses at the sophomore level or higher and attained a total average in these courses of at least 3.0. This requirement does not apply to applicants to the architecture and graphic design programs.
- Transfer students must have obtained a minimum grade of B to transfer a technical, math or science course or a minimum grade of C+ to transfer other types of courses.
- Have satisfied the university English requirements for admission.

Applications of transfer students are evaluated and approved by the departments and the Undergraduate Admissions Committee of the faculty. The term in which the students are placed and the complete program of study in the major in which they are admitted, are determined by the department concerned.

Class Status

The class status of students is as follows:

Students' status is changed to that of a higher year if their cumulative number of failed, withdrawn, or unregistered credits from the regular credit hour requirements does not exceed seven.

First Year	Terms I and II
Second Year	Terms III, IV and V
Third Year	Terms VI, VII and VIII
Fourth Year	Terms IX, X and XI
Fifth Year (Architecture)	Terms XII, XIII and XIV

Residency Requirements

Students of the Maroun Semaan Faculty of Engineering and Architecture must meet the following minimum residency requirements:

Engineering or Graphic Design Majors: Students must register in residence at the Maroun Semaan Faculty of Engineering and Architecture for the last four regular terms and should complete at least 50 credits during this period.

Architecture Major: Students must register in residence at the Maroun Semaan Faculty of Engineering and Architecture for the last five regular terms and should complete at least 65 credits during this period.

Courses

Required course

FEAA 200 Introduction to Engineering and Architecture 3 cr.
The course is designed to familiarize first year students with the different disciplines in engineering and architecture, including: architecture, civil, mechanical, electrical, chemical, industrial and technologies used in the fields. The course takes a unique interdisciplinary approach to the field and introduces the related disciplines in the world of engineering and architecture. One key objective is to promote interdisciplinary interaction and innovative thinking. The course is organized into modules covering the different disciplines within the Maroun Semaan Faculty of Engineering and Architecture (MSFEA). The last module of the class showcases interdisciplinary projects demonstrating interactions among the different fields. The lectures explain as applicable to each discipline, through examples, notions of problem solving, design thinking, process of invention and innovation, environmental and civic responsibility, and measures of success in aesthetics and performance. The course project is a key component of the course. It is interdisciplinary in nature bringing ideas and solutions from all disciplines in engineering and architecture. Annually.

Elective courses

FEAA 300 Functional Biology for Engineers and Designers 3 cr.
This course provides an intensive study of selected biological systems with direct applications to nature-based solutions in the built environment. Positioned at the intersection of biology and engineering, it draws on the principles of biomimicry, biomimetics, and systems ecology to bridge biological understanding with design innovation. Students will analyze the ecological, morphological, and physiological adaptations of organisms across diverse biomes, with emphasis on functional biology and evolutionary mechanisms that promote resilience, efficiency, and sustainability. Students will examine species' survival strategies and apply biological strategies to derive transferable design principles. Through engagement with primary biological literature, case studies, field observations, and experimental prototypes, the course grounds theoretical learning in real-world contexts. Upon completion, students will be able to describe and explain biological adaptations and ecological principles; analyze organismal and ecosystem-level systems for functional traits; apply biological strategies to engineering challenges; and communicate and collaborate effectively in the development of bio-inspired solutions.

FEAA 400/ LDEM 203 Planetary Systems Thinking 3 cr.
This interdisciplinary course introduces students to the principles and practices of sustainability through the lens of socioecological systems. The course integrates systems thinking with technical and design perspectives and invites students to critically explore how sustainability and resilience can be integrated into their disciplines.

FEAA 500 (6 cr. /1 b.) / 500A (6 cr. / 6 b.) Cooperative Education and Experiential Learning
This course places students in a recognized firm in Lebanon or abroad for a supervised immersive learning experience in which they work as junior-level professionals in their fields of study. For a minimum of six months, students work full-time in a paid position where they apply their knowledge to challenging problems related to their field of study. This course extends over two terms and is registered twice as FEAA 500 and FEAA 500A in order to cover the six-months period. FEAA 500: 6 credits - 1 billing - grade (PR) – prerequisites: approval of the course coordinator and completion of a minimum of 90 credits for engineering students (120 credits for architecture students). FEAA 500A: 6 credits - 6 billing – prerequisite: FEAA 500.

FEAA 501 Final-Year Project Accelerator I 0 cr.
This sequence of two courses provides selected Final-Year Project (FYP) students with the knowledge, tools, and mentorship needed to transform their technical FYP into a viable business by the time they graduate. Topics include design thinking, business planning, business modeling, team formation, marketing, finance, legal aspects, and pitching. Annually in fall term. Corequisite: final-year project in student home department.

FEAA 502 Final-Year Project Accelerator II 0 cr.
This sequence of two courses provides selected Final-Year Project (FYP) students with the knowledge, tools, and mentorship needed to transform their technical FYP into a viable business by the time they graduate. Topics include design thinking, business planning, business modeling, team formation, marketing, finance, legal aspects, and pitching. Annually in spring term. Prerequisite: FEAA 501.

FEAA 510 Design for Circularity 3 cr.
Circular design is a design approach that contributes to Circular Economy (CE) through regenerative systems that maintain the quality of life while creating social, economic, and ecological value. This project-based studio course builds a systemic understanding of the needed shift in design perspective to transform the current linear model to a circular one. It provides students with the mindset, tools, and knowledge to assess the circularity of products and processes, design circular processes, and design products to be easily reused, repaired, remanufactured, or recycled. It also introduces the importance of the use of digital technologies to enable and accelerate the transition to CE. 3 credits, Prerequisite: instructor's approval.

FEAA 520 Data Centric Design 3 cr.
This course introduces students to the various types of data, the basics of sensing, data acquisition, database design, and data analytics. FEAA 520 combines theoretical topics in machine learning with practical methods for solving problems, using Python or other programming languages. The students are exposed to supervised and unsupervised machine learning algorithms (e.g., clustering, linear regression, and classification), as well as basic deep learning architectures. The topics are demonstrated with examples from all engineering disciplines and several hands-on laboratory sessions. Prerequisites: EECE 230/231, MATH 201, and STAT 230 (MATH 218/219 is preferred but not mandatory).

VIPP 201 Vertical Integrated Project 1 cr.
For first-year students.

VIPP 202 Vertical Integrated Project 2 cr.
For second-year students.

VIPP 301 Vertical Integrated Project 1 or 2 or 3 cr.
For third-year students.

VIPP 401 Undergraduate Research for VIPP students 3 cr.
In this course, undergraduate senior or junior students engage in applied research with faculty and graduate students on multi-disciplinary, team-based research projects. Students work with faculty and industry mentors on real-world large-scale projects with students from different majors. Participants develop research experience and team skills while integrating knowledge from previous courses and refining their professional skills (teamwork, project planning, and communications).

VIPP 501 Vertical Integrated Project (1 or 3 cr.)
For fourth-year students. Cross-listed with the final year projects (FYPI) in different programs at MSFEA.

VIPP 502 Vertical Integrated Project (3 or 4 cr.)
For fourth-year students. Cross-listed with the final year projects (FYPII) in different programs at MSFEA.

Minors

Description of all minors at MSFEA is situated in its specific department. However, there are two minors offered that do not fall under a specific department listed below.

Minor in Humanitarian Engineering and Public Health Innovations

The minor in humanitarian engineering and public health Innovations is offered jointly by the Faculty of Health Sciences and the Maroun Semaan Faculty of Engineering and Architecture.

The minor is open to undergraduate students from all majors. It is a multidisciplinary offering that provides undergraduate students with the knowledge of the humanitarian engineering field, and equips them with the skills required to find innovative design solutions for challenges faced by disadvantaged populations taking into consideration two complementary perspectives; public health perspective and engineering perspective.

Students who complete the minor will be able to:

1. Apply participatory needs assessment tools and analyze the different dimensions of a public health problem.
2. Apply formal design methods to develop practical, feasible, scalable, and sustainable humanitarian engineering and public health innovations and interventions.
3. Apply skills required to manage complex projects while working in multidisciplinary teams.
4. Demonstrate entrepreneurial skills to take a solution/intervention from prototype to product.
5. Articulate and adhere to ethical standards in the process followed and in the intervention designed.
6. Present and document a problem and its solution to a diverse target audience.

The minor in humanitarian engineering and public health innovations consists of 15 credits, according to the following requirements:

- HEHI 201, “Foundations of Humanitarian Engineering and Public Health Innovations”
- HEHI 202 A/B, “Humanitarian Engineering and Public Health Innovations Capstone”
- One design course from the following list: AGSC 330, ARCH 061, ARCH 064, ARCH 072, ARCH 344, BMEN 501, CHEN 351, CHEN 471/571, CHEN 619, CHEN 798A, CIVE 552, CIVE 601, CIVE 628, CIVE 691, EECE 461, EECE 560, EECE 675, ENMG 663, ENMG 698E, ENSC 633, ENST 300, FSEC 310, FSEC 315, HPCH 204, HPCH 212, INFO 205, LDEM 254, LDEM 298, LDEM 633, MECH 430, MECH 530, MKTG 234, NFSC 306, NURS, 408 PBHL 303, URDS 664, URPL 641.
- One ethics course from the following list: BUSS 215, INDE 410, MCOM 215, MHRM 304, PHIL 205, PHIL 209, PSYC 305.
- One social entrepreneurship course from the following list: AGBU 229, ARCH 068, ENMG 654, ENTM 220, INDE 412.

Students interested to enroll in the minor are encouraged to inform the coordinators of the program at healthengineering@aub.edu.lb to benefit from adequate advising on study plans and ensure completion of all requirements.

Certificate Option

Students can opt for a certificate in humanitarian engineering and public health innovations.

The “Humanitarian Engineering and Public Health Innovations” certificate requirements are:

- HEHI 201, “Foundations of Humanitarian Engineering and Public Health Innovations”
- HEHI 202 A/B, “Humanitarian Engineering and Public Health Innovations Capstone”
- An internship approved by the humanitarian engineering initiative of at least 8 weeks full-time.

Students should declare the certificate before completing the requirements.

Upon prior approval of the students’ adviser and the coordinators of the humanitarian engineering Initiative, students who are required, as part of their degree requirement, to complete an internship or practicum, can also count that experience towards fulfilling the internship requirement for the certificate.

Course Descriptions

HEHI 201 Foundations of Humanitarian Engineering and Public Health Innovations 3 cr.
This is a multidisciplinary course that covers fundamentals of designing solutions for health challenges faced by disadvantaged populations. It introduces tools for identifying humanitarian and/or development needs and designing practical, scalable, and sustainable solutions and interventions. The course is offered to students from all majors. Students will be exposed to health and health system challenges in addition to design fundamentals including participatory needs assessment, formal multidisciplinary design processes, and relevant technologies and tools with real world applications and case studies. Open to students in advanced standing (second and third year for three years program and third and fourth year for four years program).

HEHI 202A/B Humanitarian Engineering and Public Health Innovations Capstone 3 cr.
The capstone project course is an interdisciplinary service-learning design course focused on development and humanitarian engineering solutions for health challenges. In the capstone, students apply all tools learned in HEHI 201. Students work in multidisciplinary teams with disadvantaged communities, under joint supervision of at least two mentors from MSFEA, FHS, and other faculties. The capstone is divided into two sub-courses, HEHI 202A (1cr.) and HEHI 202B (2cr.), and must be registered in two consecutive terms. HEHI 202A has as a prerequisite: HEHI 201. HEHI 202B has as a prerequisite: HEHI 202A.

Upon prior approval of the students’ adviser and the coordinators of the humanitarian engineering initiative, students who are required, as part of their degree requirement, to complete a capstone or final year project, can count that experience towards fulfilling the capstone requirement for the minor.
To graduate with the minor, students must attain a minor GPA of 2.3 or more to satisfy its requirements.

Minor in Biomedical Engineering Design (18 Credits)

Coordinator	Mhanna, Rami (Biomedical Engineering, MSFEA)
Co-coordinator	Rahal, Elias (Experimental Pathology, Immunology, and Microbiology, FM)
Coordinating Committee Members	Amatoury, Jason (Biomedical Engineering, MSFEA) Daou, Arij (Biomedical Engineering, MSFEA) Darwiche, Nadine (Biochemistry & Molecular Genetics, FM) El Hajj, Albert (Surgery, FM) Khraiche, Massoud (Biomedical Engineering, MSFEA) Refaat, Marwan (Internal Medicine, FM) Saad, Walid (Chemical Engineering, MSFEA) Zouein, Fouad (Pharmacology and Toxicology, FM)

The biomedical engineering (BMEN) program at the American University of Beirut is offering an interdisciplinary minor in the Maroun Semaan Faculty of Engineering and Architecture (MSFEA) aimed at preparing students for design and innovation in the field of bioengineering. The minor will educate students on the process of designing engineering solutions with focus on biomedical and healthcare applications. This is achieved through a set of courses that include two new courses, BMEN 501 and BMEN 502. In BMEN 501 “Bioengineering Design Fundamentals,” students will be exposed to the key steps of engineering design from needs assessment and problem identification to prototyping and validation including concepts, methodologies, and tools with focus on biomedical and healthcare use cases. BMEN 501 is a regular course and includes weekly lectures by the instructor and invited guests, assignments, a course project, and several quizzes. In BMEN 502 “Bioengineering Design Capstone”, students will apply the engineering process to an interdisciplinary biomedical project with joint mentoring from MSFEA and FM faculty members. The minor also includes additional courses aimed at covering basic background in biology/physiology, a broad overview of the various subfields of biomedical engineering, and advanced topics.

The minor in biomedical engineering design is open to AUB students from all majors who have completed their first academic year (non-engineering students) or their first two academic years (engineering students) and who have a cumulative GPA of 2.3 or more. The minor will be indicated on the transcript of the students who complete all the requirements described below. To graduate with a minor, students must attain a minor GPA of 2.3 or more to satisfy its requirement.

The minor requirements are divided into a set of core courses and a set of elective courses with a total of 18 credits, as follows:

- BIOL 210 [3 cr.] (can be replaced by BIOL 202 or PHYL 246)
- BMEN 501 [3 cr.]
- BMEN 502 [3 cr.]
- BMEN 600 [3 cr.]
- One biomedical engineering advanced topics course from List A below [3 cr.]
- One elective course from either List A or List B below [3 cr.]

Elective Courses

- **List A:** BMEN 603/CHEN 675/MECH 798J, BMEN 606, BMEN 609, BMEN 610, BMEN 611/MECH 611.
- **List B:** INDE 412, BMEN 601/MECH 635, BMEN 604/CHEN 673, BMEN 605, BMEN 606, BMEN 607/ MECH 633, BMEN 608/MECH 634, BMEN 610, EECE 488/688, EECE 490/690, EECE 601, EECE 602, MECH 340, MECH 607, MECH 631, MECH 705, BIOC 321 and BIOC 322 and 1 credit biomedical course (e.g., HUMR 310A lab), BIOC 326A and BIOC 326B and 1 credit biomedical course (e.g., HUMR 310A lab), BIOL 251, BIOL 310, EPHD 310.

Minor Topics

- **Biosensors and Bioelectronics:** Classes: BMEN 606, EECE 688/488.
- **Biomaterials:** Classes: BMEN 603/CHEN 675/ MECH 798J MECH 340 or BMEN 608/MECH 634.
- **Neural Engineering/Neuroscience:** Classes: BMEN 609, BMEN 610.
- **Data Science and Biosensor Technologies:** Classes: BMEN 606 or EECE 688/488, EECE 490/690.
- **Biomechanics:** BMEN 607/MECH 633, BMEN 611/ MECH 611.
- **No Topic:** Must take 2 classes one from list A and one from list B.

Course Descriptions

BMEN 501 Bioengineering Design Fundamentals 3 cr.

The course aims to educate and train students in the process of utilizing engineering design concepts, methodologies, and tools for developing medical technologies. The course will teach the design process focused on development of engineering solutions in healthcare. This will include problem definition, identifying needs, setting specifications, and translating them to prototypes, testing and design refinements. The material will be taught partly through active discussions, in class, of design topics, case studies, and design exercises. Also, in the final part of the course the students will be challenged to identify a problem and use the design process to develop the needs and specifications. In addition, students will learn about intellectual property, research ethics, and various regulations for biomedical technology and human safety considerations.

BMEN 502 Bioengineering Design Capstone 3 cr.

The course provides practical training in engineering design as students are placed within design groups to work through a real-life iteration of the engineering design process they learned in BMEN501 for an idea either of their own or provided by faculty members. Interdisciplinary teams will typically be paired up with two faculty mentors, one from MSFEA and one from FM. Students will be challenged to innovate and improve clinical, diagnostic, or patient care technologies via need-based problem statements under the guidance of their faculty mentors. Each team will complete the course by delivering a prototype or a proof of concept of their engineering solution capable of demonstrating the required functions of the intended solution. Each team will present the outcome of their work in technical reports and oral presentations. Prerequisite: BMEN 501.

BMEN 600 Biomedical Engineering Applications 3 cr.
Biomedical engineering is an interdisciplinary domain which applies principles of engineering to find solutions for biological and health problems. Biomedical engineering aims to improve our fundamental understanding of biological processes and develop approaches for optimized therapeutic/diagnostic healthcare procedures. The field of biomedical engineering involves the development of materials to replace or enhance the operation of damaged or malfunctioning biological entities, development of diagnostic and therapeutic tools, modeling of biological systems, signal processing and bioinformatics. This course will introduce students to biomedical engineering and provide insight into the various applications in the biomedical engineering field. The course will be divided into modules, and each will be given by a specialist in a certain biomedical engineering area.

BMEN 601/MECH 635 Computational Modeling of Physiological Systems 3 cr.
This course focuses on the quantitative modeling of different physiological systems. It provides students with current concepts of the mathematical modeling, and different quantitative descriptions of cellular and organ physiology. At the subcellular/cellular level, we will examine mechanisms of regulation and homeostasis. At the system level, the course will cover basic aspects of anatomical and pathophysiological features of the nervous, neural, cardiovascular, and respiratory systems. Several physiological processes are treated as case studies for increasing complexity in modeling dynamical systems.
Prerequisites: MATH 202 and EECE 231, or consent of instructor.

BMEN 603/CHEN 675/MECH798J Tissue Engineering 3 cr.
In a world of aging population, an ever-increasing demand for improvement of healthcare services and need for replacement organs and tissues are arising. The limited pool of donors together with the problem of donor organ rejection is a strong driver for engineering tissues and other body parts. Tissue engineering is an interdisciplinary field that uses cells, biomaterials, biochemical (e.g., growth factors) and physical (e.g., mechanical stimulation) signals, as well as their combination to generate tissue-like structures. The goal of tissue engineering is to provide biological substitutes that can maintain, restore, or improve the function of damaged organs in the body. This course will introduce interested students to the new field of tissue engineering and provide insight on cutting edge applications in this area.

BMEN 604/CHEN 673 Engineering of Drug Delivery Systems 3 cr.
This course focuses on recent advances in the development of novel drug delivery systems. The fundamentals of drug delivery are discussed. Various strategies to tune and control the release of active agents for optimized therapeutic outcomes are explored. The course covers polymers and techniques used to produce drug nanoparticles, with specific examples of nanoparticle-based drug delivery systems.
Prerequisites: CHEN 314 and CHEN 411, or consent of instructor.

BMEN 605 Biomedical Imaging 3 cr.
Biomedical imaging offers an unprecedented view into the structure and function of a living body, and as such plays an essential role in medical practice and research. This course will provide students with an overview of the key concepts underlying the primary diagnostic biomedical imaging modalities, including: ultrasound, x-ray, computed tomography and magnetic resonance imaging. Students will gain an understanding of the physical principles and theoretical foundations governing the operation of each imaging modality, the technology that translates theory into practice, and the basics of image formation. Students will also learn about clinical and research applications in imaging. The course includes class sessions, demonstrations, tours, and research seminars. Prerequisite: consent of instructor.

BMEN 606 Nanobiosensors 3 cr.
This course will provide a comprehensive analysis of the field of nanoengineering with a focus on biosensors including common modalities, basic theoretical considerations for sensor operation, physics of detection and applications in research and medical diagnostics. The course will cover the major types of electronic nanobiosensors for biological signal detection (potentiometric, amperometric, and mass-based sensors) and their applications in the fields of neural engineering, DNA sequencing and cardiovascular early disease detection. The course will enable students to have a strong grasp of fundamentals of biosensor design, select sensors for various applications and evaluate new and emerging technologies. Prerequisites: EECE 210 (or equivalent) and BIOL 210 (or equivalent); or consent of instructor.

BMEN 607/MECH 633 Biomechanics 3 cr.
A course on the study of the biomechanical principles underlying the kinetics and kinematics of normal and abnormal human motion. Emphasis is placed on the interaction between biomechanical and physiologic factors (bone, joint, connective tissue, and muscle physiology and structure) in skeleto-motor function and the application of such in testing and practice in rehabilitation. The course is designed for engineering students with no previous anatomy/physiology. Prerequisites: CIVE 210, MECH 320 or CIVE 310; or consent of instructor.

BMEN 608/MECH 634 Biomaterial and Medical Devices 3 cr.
A course that examines the structure-property relationships for biomaterials and the medical applications of biomaterials and devices. The first part of the course focuses on the main classes of biomaterials, metal, ceramic, polymeric and composite implant materials, as well as on their interactions with the human body (biocompatibility). The second part of the course examines the various applications of biomaterials and devices in different tissue and organ systems such as orthopedic, cardiovascular, dermatologic, and dental applications. Experts from the medical community will be invited to discuss the various applications. Prerequisite: MECH 340 or consent of instructor.

BMEN 609 Computational Neuroscience 3 cr.
The human brain, perhaps the most complex, sophisticated, and complicated learning system, controls virtually every aspect of our behavior. The central assumption of computational neuroscience is that the brain computes. What does that mean? Generally speaking, a computer is a dynamical system whose state variables encode information about the external world. In short, computation equals coding plus dynamics. Some neuroscientists study the way that information is encoded in neural activity and other dynamical variables of the brain. Others try to characterize how these dynamical variables evolve with time. The study of neural dynamics can be subdivided into two separate strands. One tradition, exemplified by the work of Hodgkin and Huxley, focuses on the biophysics of single neurons. The other focuses on the dynamics of networks, concerning itself with phenomena that emerge from the interactions between neurons. Therefore, computational neuroscience can be divided into three sub-specialties: neural coding, biophysics of neurons, and neural networks. This course will introduce engineers, physicists, computational scientists, mathematicians, and other audiences to the neurosciences from the cellular level and the network level as seen from computational lenses. Prerequisites: BIOL 201 (or equivalent) and Math 202, or consent of instructor.

BMEN 610 Micro and Nano Neural Interfaces 3 cr.
Neural interfaces are micro and nano devices that form the connection between the biological neural tissue and the external electronic devices. These devices are designed for mapping, assisting, augmenting, or repairing neural pathways. The course will focus on physical, chemical, and neurophysiological principles of neural interfaces, theoretical and functional basis for their design, micro and nano fabrication techniques, and applications in neural prosthesis for Brain Machine Interface. Topics covered in class will include: neural engineering, brain machine interface, microfabrication, nanofabrication, soft-lithography, electrokinetics, electrochemistry, neural probes, biocompatibility, microelectrodes, NeuroMEMS (neuro microelectromechanical systems), BioMEMS (biomedical microelectromechanical systems). Prerequisite: consent of instructor.

BMEN 611/MECH 611 Computational Modeling in Biomechanics 3 cr.
This course is open to engineering, math, science, and medical students wanting a glimpse into the world of computational finite element modeling and simulation to investigate and solve biomedical problems. Students will take a journey through the processes involved in producing a computational finite element model in the biomedical field; starting at construction of model geometry from medical imaging data (CT/MRI), through to model creation, simulation and visualization using finite element analysis software (ANSYS Workbench). Students will also be exposed to select experimental lab techniques in biomechanics and physiology that are used in model development and validation. In pursuit of developing an appreciation for the areas covered, the course will incorporate a mix of theory, demonstrations, practice, real-world modeling applications, and research seminars. Prerequisite: MATH 201 and consent of instructor.

School of Architecture and Design

Founding Director of the School of Architecture and Design	Al-Harithy, Howayda
Graduate Programs Coordinator	Harb, Mona
Architecture Track Convener	Patt, Trevor Ryan
Graphic Design Track Convener	Gharbieh, Ahmad
Landscape Architecture Track Convener	Dreksler, Beata
Professors	Al-Harithy, Howayda; Harb, Mona; Musfy, Leila; Fawaz, Mona; Ghaibeh, Lina; Talhouk, Salma; Zurayk, Rami
Associate Professors	Abunnasr, Yaser; Aramouny, Carla; Dreksler, Beata; Gharbieh, Ahmad; Najjar, Karim; Pellegrini, Paola
Assistant Professors	Acikgoz, Umit Firat; Al-Akl, Nayla; Khoury, Yara; Fakour, Sina; Marinovic, Goran Ivo; Patt, Trevor Ryan; Traboulsi, Jana
Assistant Professors of Practice	Fayad, Nicolas; Frem, Sandra
Visiting Assistant Professor	Abu Saada, Nadi
Visiting Professor of Practice	Joubanian, Vrouyr
Adjunct Professor	Makhzoumi, Jala
Adjunct Associate Professor	Trovato, Maria Gabriella
Senior Lecturers	Abboud, Rania; Abdalhay Alkhayat, Nadine; Abdallah, Ramona; Abi Rached, Marc; Al-Kadi, Makram; Alamuddine, Hana; Balaa, Lara; Bassil, Georgio; Berro, Maher; Braidy, Michele; Boyadjian, Raffi; Charafeddine, Leen; Fayad, Farah; Gemayel, Imad; Genz, Bettina; El-Imam, Hatem; Hassan, Sinan; Jamal, Sany; Kosermelli, Simone; Mallat, Bernard; Merhi, Layal; Shaiban, Houssam; Yamout, Nadine; Yazigi, Serge
Lecturers	Abi Hanna, Ghita; Al-Hage, Carla; Al-Kakoun, Nathalie; Apelian, Khajag; Bacha, Karim; Bacho, Omar; Badran, Noura; Baki, Fadi; Basbous, Monica; Bou Nasr, Roland; Dabaji, Kassim; Denris, Alicia; El Masri, Yasser; Elsouri, Amer; Hanna, George; Hassoun, Nour; Issa, Maha; Khoury, Greta; Melhem, Wissam; Moussawer, Karim; Muhsen, Dana; Nader, Halim; Youssef, Shawki

Senior Instructors	Atallah, Davina; Badran, Zeina; Fabian, Monika; Fedaoui, Maya; Saksouk Sasso, Abir; Tawil, Wissam
Instructors	Al Baalbaky, Ahmad; Asfour, Nadia; Dahrouj, Philippa; Faour, Batoul; Farah, Karim; Mabsout, Joude; Mezher, Fouad; Kanaan, Mohamad; Kattan, Sarah-Rita; Nouraldeen, Ahmad; Ohannessian, Choghag; Saber, Romy; Traboulsi, Tanya; Zeenny, Joanna
Lab Manager	Azzi, Ghinwa
Lab Instructor	Khalil, Mirella

Undergraduate Programs

The School of Architecture and Design (SoAD) offers the degrees of bachelor of architecture (BArch), bachelor of fine arts (BFA) in graphic design.

Bachelor of Architecture (BArch)

Program Mission

The bachelor of architecture program offers students a first professional degree that qualifies them to practice architecture. The program aims to graduate well-rounded intellectuals, critical thinkers and skilled professional architects who are committed to the advancement of the field and practice and who have a sense of responsibility for the built environment and natural resources. Design is approached as a research-oriented process that is culturally grounded, theoretically informed, and technically advanced so as to enable graduates to become lifelong learners and take a leading role in professional practice both in Lebanon and the region.

Program Requirements

The architecture program comprises a total of 174 credit hours normally taken over five years. The curriculum is structured as follows: 1) Two foundation years, first and second, with core requirements in design, technical and history courses that offer students basic skills and knowledge in design and related areas. 2) Two advanced years, third and fourth, with core requirements in advanced design, technical, history and theory courses, reinforced by the distribution electives. Two of the design studios at this level are thematic vertical studios. 3) Final year, fifth year, with a two-term design thesis and project and advanced electives. In order to pass a year, students must obtain a minimum GPA of 2.3 in both design courses offered in any given year. If the GPA is below 2.3, students must repeat the design studio(s) in which they received a grade below C+.

The degree requirements in architecture consist of the following:

- 117 credit hours of mandatory core courses
- 24 credit hours of approved SoAD/MSFEA field electives distributed as follows:
  - 3 credit hours in Category A: Representation
  - 3 credit hours in Category B: History and Theory
  - 3 credit hours in Category C: Technology and Professional Practice
  - 15 credit hours in any of categories A, B, or C
- 6 credit hours of free electives in consultation with the academic adviser
- 27 credits hours of general education courses

Note: Total GE requirement of 39 credit hours includes 12 to 15 credits satisfied within the architecture core program

To meet the general education requirements of AUB, students must take:

- **Understanding Communication (9 credits):** 3 credits Arabic course, ENGL 203, and ENGL 206
- **Understanding Ourselves (15 credits):** 6 credits from "Societies & Individuals", out of which 3 credits are satisfied by the required ARCH 432 course, and 9 credits from "Cultures & Histories", out of which 6 credits are satisfied by the required ARCH 121 and ARCH 122 courses. Out of these 15 credits, 3 credits must fulfill the thematic requirement: Social inequalities (Satisfied by ARCH 432), and 3 credits must fulfill the thematic requirement: History of Ideas (Must be a CHLA 2xx course).
- **Understanding Our Role in the World (6 credits):** 3 credits from Community Engaged Learning as a GE course, or from an approved field elective such as ARCH 061 DI-Lab. If the Community Engaged Learning requirement is satisfied by a field elective within the program, then an additional 3 credit hours free elective will be required. 3 credits course from Human Values.
- **Understanding the World and Quantitative Reasoning (9 credits):** at least 3 credits from each. One of the Understanding the World courses has to be ARCH 151.

Curriculum for Bachelor of Architecture

First Year

Fall Term		**Credits**
ARCH 100	Basic Design	6
ARCH 111	Drawing I	3
ARCH 121	History of Art and Architecture I	3
FEAA 200	Introduction to Engineering and Architecture	3
ENGL 203	Academic English	3
		Total 18

Spring Term		Credits
ARCH 101	Architecture Design I	6
ARCH 112	Drawing II	3
ARCH 122	History of Art and Architecture II	3
ARCH 151	Statics and Mechanics of Solids	3
		Total 15

Second Year

Summer Term		Credits
ARCH 241	Surveying Regional Architecture 2D-3D	9

Fall Term		Credits
ARCH 202	Architecture Design II	6
ARCH 223	History of Art and Architecture III	3
ARCH 252	Structural Systems	3
ARCH 242	Building Construction I	3
1 General Education Requirement		3
		Total 18

Spring Term		Credits
ARCH 203	Architecture Design III	6
ARCH 231	Contemporary Architecture	3
ARCH 243	Building Construction II	3
1 General Education Requirement		3
		Total 15

Third Year

Summer Term	Credits
3 General Education Requirements	9

Fall Term		Credits
ARCH 304	Architecture Design IV	6
ARCH 360	Environment I - Climate Responsive	3
ARCH 313	Digital Tools	3
1 Field or Free Elective or 1 General Education Requirement		3
		Total 15

Spring Term		Credits
ARCH 305	Vertical Studio I	6
ARCH 353	Environment II - Building Systems	3
ARCH 432	Urbanism	3
1 General Education Requirement		3
		Total 15

Fourth Year

Summer Term	Credits
No courses are required. Students can make up for credits missed prior to this term in general education or free electives.	

Fall Term		Credits
ARCH 406	Architecture Design V	6
1 Field or Free Electives		3
2 General Education Requirement		6
		Total 15

Spring Term		Credits
ARCH 407	Vertical Studio II	6
ARCH 461	Professional Practice	3
2 Field or Free Electives		6
		Total 15

Fifth Year

Summer Term		Credits
ARCH 572	Professional Training	1 b

Fall Term		Credits
ARCH 508	Design Thesis I	6
3 Field or Free Electives		9
		Total 15

Spring Term		Credits
ARCH 509	Design Thesis II	6
3 Field or Free Electives		9
		Total 15

Total Credits Hours	174

Course Descriptions

Mandatory Core Courses

Each of the following courses is required for the degree in architecture. Students should pay careful attention to the prerequisite structure, which must be observed. There is a grade average requirement for ARCH 100/101, 202/203, 304/305, 406/407 and 508/509. In order to pass a year, students must obtain a minimum GPA of 2.3 in both design courses offered in any given year. If the GPA is below 2.3, students must repeat the design studio(s) in which they received a grade below C+. Non-majors must secure the approval of the school and the instructor concerned to enroll in any of the courses listed below.

FEAA 200 Introduction to Engineering and Architecture 3 cr.
The course is designed to familiarize first year students with the different disciplines in engineering and architecture, including: architecture, civil, mechanical, electrical, chemical, industrial and technologies used in the fields. The course takes a unique interdisciplinary approach to the field and introduces the related disciplines in the world of engineering and architecture. One key objective is to promote interdisciplinary interaction and innovative thinking. The course is organized into modules covering the different disciplines within the Maroun Semaan Faculty of Engineering and Architecture (MSFEA). The last module of the class showcases interdisciplinary projects demonstrating interactions among the different fields. The lectures explain as applicable to each discipline, through examples, notions of problem solving, design thinking, process of invention and innovation, environmental and civic responsibility, and measures of success in aesthetics and performance. The course project is a key component of the course. It is interdisciplinary in nature bringing ideas and solutions from all disciplines in engineering and architecture. Annually.

ARCH 100 Basic Design 6 cr.
The studio introduces students to the field of design and its fundamental principles. It is required for all first-year students in architecture and graphic design. The aim of the course is to expose students to basic design principles and train them in design studio skills, including 2D drawing and model-making.

ARCH 101 Architecture Design I Introduction to Tectonics, Space, and Representation 6 cr.
The course introduces the generic issues that influence and shape architectural design, and aims at developing the skills to address them. The studio focuses on such elements as tectonics, design method and representation, human scale, space, form and light, function, place, and time. Design is understood as a method of inquiry, through hands- on exercises. With an introduction to basic structural principles, the students acquire fabrication skills that inform architectural expression and encourage inventiveness. They learn how model-making and drawing are tools that inform the design process and form-making in architecture. Prerequisite: ARCH 100.

ARCH 111 Drawing I 3 cr.
This course is the first in a sequence of representation courses that introduce students to the visual representations of objects and the built environment. Students learn to use basic media, free-hand, and manual drafting tools. The course covers geometry, basic drawing, and representation conventions in 2D and 3D, namely orthogonal projections (plans, sections, and elevations) and paraline projections (axonometrics and isometrics). Lectures about conventions, methods, and historical references to architects and artists' drawings and work supplement the course.

ARCH 112 Drawing II 3 cr.
This course is the second in a sequence of representation courses. It covers more advanced visual representation techniques in architecture and teaches students to work across analog and digital representation tools. The course moves between free hand sketching, perspective methods to more complex 3D and composite architecture drawings. It also introduces students to basic concepts of diagramming and collages as methods for imagining architectural space. Students learn to use 2D digital tools (CAD) in parallel to hand drawing. Lectures about conventions, methods and historical references to architects and artists' drawings and work supplement the course. Prerequisite: ARCH 111.

ARCH 121 History of Art and Architecture I 3 cr.
The first course in the history of art and architecture sequence looks at the origins and development of architecture, artifacts, and urbanism from prehistoric times through the later medieval period. We move beyond the chronological model to include themes that link art and the cultures that produced it through comparison of objects associated both with the activities of daily life and with the different practices of kingship and religion, especially beliefs and rituals surrounding death, burial, and the afterlife. The course focuses on cultures around the Mediterranean rim and beyond. Local field trips are an important component of the class. The course is required for students in the architecture and graphic design programs but is open to all students.

ARCH 122 History of Art and Architecture II 3 cr.
This course, the second in the history of art and architecture sequence, focuses on global cultural encounters and exchanges in the post-Medieval period. A thematic and analytic study of major developments in different cultures, it challenges the hegemony of the geographic center. Adaptation, initiative, and innovation flow along many different pathways, and in addition to the formal differences amongst visual languages, the course emphasizes processes of cultural production in imperial contexts, their ideological frameworks, and their socio-political significance in writing the history of art, architecture and artifacts. The course is required for students in the Architecture and Graphic Design programs but is open to all students.

ARCH 151 Statics and Mechanics of Solids 3 cr.
The course covers basic physics principles and structural analysis, the strength of materials and their structural properties. It combines lectures and lab work, and imparts a basic understanding of how structural elements of a building work and how they can be manipulated.

ARCH 202 Architecture Design II Materials and Structures in the Natural Environment 6 cr.
The studio focuses on materials and structures in the natural environment. It is taught concurrently with technical courses: Structural Systems and Building Construction I. Through lectures, analyses of precedents, material case studies and different exercises, students investigate structural systems, materials, and construction methods, exploring their formal, spatial, and aesthetic possibilities and environmental characteristics. Students apply their explorations to integrate structures in a natural environment. Through site visits and studio exercises, students are introduced to site analysis and landscape basics, and begin to address environmental conditions as they relate to climate, topography, and vegetation. The course aims at clarifying the dialectic relationship of material, structure, architectural form, and site. Prerequisites: ARCH 101, ARCH 241 and a combined grade average of C+ (GPA: 2.3) in ARCH 100 and ARCH 101.

ARCH 203 Architecture Design III Public Architecture in an Urban Context 6 cr.
Building on the previous design courses, Architecture Design III addresses public building structures in urban environments. Through exercises, site visits, lectures and discussions, students are introduced to different themes and methods in understanding architecture in the urban realm. They look at urban areas with reference to historical, cultural, and socioeconomic factors. Mapping and abstraction are key tools for design inquiries. Students are asked to develop and integrate program and architectural design in the urban context, with reference to quantitative data on the ground, such as density, traffic, etc. as well as qualitative data such as culture, habits, behavior, etc. Through various exercises they learn about the urban context at different scales ranging from small urban installations to medium-scale buildings with hybrid programs; they also address accessibility, and pedestrian and vehicular circulation. The course balances analytical skills with design interventions. Prerequisite: ARCH 202.

ARCH 223 History of Art and Architecture III 3 cr.
The last course of the History of Art and Architecture sequence surveys the development of Western art and architecture from 1830 to 1945. Thinking beyond the established canon, the course critically addresses the political, aesthetic, institutional, and cultural forces that have contributed to shaping this canon. Problems we encounter when we acknowledge that art is a cultural product include the uneasy fit of style-period categories or the isms of art, gender, historical definitions of the avant-garde, the consumption and display of art, and the status of the artist in society. Prerequisites: ARCH 121, ARCH 122 or consent of instructor.

ARCH 231 Contemporary Architecture 3 cr.
The Contemporary Architecture course investigates theory and practice in architecture and urbanism from late modernism to contemporary times. As a logical continuation of history of modern art and architecture: 1760-1945, the course begins with an overview of major post-World War II architects and architectural movements representing late modernism or challenges to the modern movement. Rather being a historical and descriptive survey of movements, trends or isms, the course then adopts a thematic and analytical approach to developments from late modernism to contemporary practice. It focuses on philosophies, theories and themes underlying contemporary architectural writings and built works and addressing issues of globalization; place and cultural identity; relationship to history and heritage; relationship to nature and landscape; environmental, social, and economic sustainability; use of technology; materials and light; and spatial and formal explorations. Prerequisite: ARCH 223.

ARCH 241 Surveying Regional Architecture 2D-3D 9 cr.
In this fieldwork course, students study and document the traditional and transitional architecture of a given region. On the macro level, the region of interest expands to the Eastern Mediterranean Sea Basin and the Middle East. On a micro level, it covers the sub regional variations within Lebanon in terms of traditional, transitional, and contemporary architecture. The scope of study encompasses different scales of rural and urban settlements. Case studies are generally structured around the investigation of building types, regional variations in architecture, and the study of historical buildings and neighborhoods. Prerequisites: ARCH 112 and ARCH 101.

ARCH 242 Building Construction I 3 cr.
This is the first in a sequence of two courses on building construction materials and methods. Having studied the structural systems and properties of various building materials in the Structures courses, in this course, students focus on materials' properties, methods of construction, assembly systems, and environmental performance and impact of masonry, concrete (cast-in-place and precast systems), steel and wood (different types). Availability and use of regional materials, material extraction, fabrication, erection, craftsmanship and jointing of different materials are addressed. The course also introduces construction sequence, site works, excavations and foundation systems. In addition to including an introduction to detailing the main constituents of the buildings' envelope, the course allows students to get hands-on experience by building scale models of masonry walls, wood frames and steel joints.

ARCH 243 Building Construction II 3 cr.
The second building construction course focuses on building enclosure and finish construction as well as on construction drawings. In the first section, basic principles and components of the building envelope are studied with their environmental performance. Topics include damp-proofing and waterproofing, thermal insulation, exterior wall systems and materials, exterior windows and doors, glazing systems, solar control and shading devices, and roofing systems. Students learn to design and detail building envelopes that provide protection from water, wind and temperature extremes and to optimize solar control. A wide range of exterior wall systems is explored. The second section of the course covers finish construction; including interior partitions, floor, stairs, wall finishes and suspended ceilings. Materials embodied energy, environmental impact and reuse are also investigated, and selection of "green" materials is discussed. In the third section, students develop the working drawing plans, elevations, sections, and details of a small house. Prerequisite: ARCH 242.

ARCH 252 Structural Systems 3 cr.
In this second structures course, students acquire a deeper knowledge of structural systems as they relate to architectural design. The course explores synergies of form, structures, and materials with an emphasis on aesthetics and efficiency. Lectures are combined with lab work to develop an understanding of structures as integral to the creative design process. The course enables students to develop structural design strategies, assume a leading role in the design and construction process and effectively communicate with structural engineers. Numerical calculation methods used are intended for rough estimations of loads and sizes. Prerequisite: ARCH 151.

ARCH 304 Architecture Design IV Environmentally Responsive Architecture 6 cr.
This studio focuses on environmental issues and the integration of green strategies into the design of mixed-use projects with a housing component in natural, rural, or urban settings. The studio is taught concurrently with a lecture course on climate-responsive design. Through lectures, analyses of historical and contemporary precedents and vernacular examples, discussions and hands-on exercises, students explore environmentally responsible site development and landscape approaches as well as passive design strategies. They also investigate housing typologies as manifestations of the needs, aspirations, and sociocultural characteristics of various groups/communities. Prerequisites: ARCH 203 and a combined grade average of C+ (GPA: 2.3) in ARCH 202 and ARCH 203.

ARCH 305 Vertical Design Studio I 6 cr.
In Vertical Studios I and II, 3rd and 4th year students join common optional studios in the spring term. Studios are designed to address specific themes relevant to architecture. Inspired by other disciplines, such as art, history, social sciences and technology, students explore new design approaches that encourage lateral thinking and experimentation. Studios provide opportunities to explore different themes ranging from media, structures, installations, and heritage to urban, social, and environmental issues. Prerequisite: ARCH 304.

ARCH 313 Digital Tools 3 cr.
This course is the third in a sequence of representation courses. With the beginning of the millennium, traces of traditional drawing in architecture have been replaced by digitized models and layouts. From initial design and visual construction to final renderings, digital tools have shifted the way an architecture project is conceived. Software, such as Rhinoceros and 3DMax, have become essential for architecture representation, especially when combined with post-production tools such as Adobe Illustrator, Photoshop, or InDesign. This course is aimed towards developing students' 3D modeling and visualization skills, as well as providing them with the tools needed to complete the construction, rendering and presentation of architectural ideas. Prerequisite: ARCH 112.

ARCH 353 Environment II – Building Systems 3 cr.
This course is the second environmental systems course. It provides a design-oriented study of environmental control, life safety and building service systems; consisting of electrical, lighting, heating, ventilation, air-conditioning, water and waste, acoustics, fire safety and fire protection, and vertical transportation. The course covers basic principles, applications, and performance of environmental control systems, and addresses these systems as they impact building planning and design, and occupant health and comfort. Sustainable design strategies, energy efficiency, optimization of indoor environmental quality and economic soundness are key issues. Prerequisite: ARCH 360.

ARCH 360 Environment I – Climate Responsive Design 3 cr.
The course addresses sustainability and climate-responsive architecture and site planning. After a brief overview of energy issues as they relate to architecture and urbanism, the course examines the interaction between climate, people, and buildings, and presents basic principles of passive design and sustainable site planning. An introduction to climatic parameters and thermal comfort is followed by a study of the elements of sun, wind, and daylight as they pertain to passive design, focusing on building form and solar radiation, natural ventilation strategies and daylighting design principles and applications. The course also briefly addresses other sustainable design strategies and includes an overview of active systems (solar, photovoltaic panels, geothermal), water reduction and reuse, green materials, and acoustics.

ARCH 432/URPL 632 Urbanism 3 cr.
This is an introductory course to contemporary debates in the field of urban studies within the social sciences and their implications for the practices of architecture, urban design, and urban planning. Special emphasis is placed on understanding processes of placemaking (that is, looking at the forces behind the production of space) and the influence of place on its dwellers (that is, seeing how places/spaces influence/dictate how people act). The relevance of these theoretical debates to the local/regional geographic context is closely investigated. Prerequisite: ARCH 231.

ARCH 406 Architecture Design V Comprehensive Design Studio 6 cr.
In this comprehensive design studio, students apply the knowledge and skills acquired in all previous design studios, theory, and technical courses. Projects assigned are medium to large-scale buildings, and themes can relate to culture, education, tourism, work, retail, and transportation. Projects envisioned are complex building structures with preferably hybrid functions addressing the public domain, circulation, accessibility, life safety, parking, building codes and zoning regulations. Prerequisites: ARCH 305 and a combined grade average of C+ (GPA: 2.3) in ARCH 304 and ARCH 305.

ARCH 407 Vertical Design Studio II 6 cr.
See description of ARCH 305. Prerequisite: ARCH 406.

ARCH 461 Professional Practice 3 cr.
The professional practice course exposes students to the scope and key aspects of design professional practice. In the first part of the course, students investigate the establishment and management of a design-focused practice with emphasis on financial planning, navigating legal and regulatory requirements, marketing strategies and team building, and ethics and professional conduct. Types of practice and professional options after graduation in the national, regional, and international realms, as well as prospects for postgraduate education and specialization are also discussed.

ARCH 508 Design Thesis I 6 cr.
In this course, students start a year-long design investigation of an architecture issue of their choice and develop a related design thesis. The design investigation must be of a professional caliber that entitles students to graduate and join professional practice as licensed architects. It is also an opportunity to pursue a comprehensive architectural design process that integrates design research, theoretical paradigms, representational methods, regulatory systems, and technical knowledge. Prerequisite: ARCH 407.

ARCH 509 Design Thesis II 6 cr.
Design Thesis is the culmination of undergraduate education in architecture. This course is the second part of a year-long thesis project. It consists of an architectural design intervention derived and developed from the issues raised and researched in Design Thesis I. Students work independently in a studio setting. Prerequisite: ARCH 508.

ARCH 572 Professional Training 1 b.
This is an eight-week professional training course at a recognized architectural design office in Lebanon or abroad. Students are expected to engage in a capacity that ensures they apply their knowledge and acquire professional experience in the field of architecture. Prerequisite: ARCH 406.

For Architecture and Graphic Design elective courses see list at end of Graphic Design section.

Minor in Integrated Product Design

Integrated product design is an interdisciplinary minor, located at the intersection of design, engineering, business, art, humanities, and social sciences. The minor in integrated product design is open to all AUB students who are interested in expanding their knowledge of design and obtaining a deeper understanding of the design process of goods, systems, and services from research and conceptualization, to design development and prototyping, and to marketing and branding. It is a minor for students who are inspired to become social entrepreneurs to design and develop products that can be implemented and scaled to trigger positive systemic change. Through the minor, students are exposed to a range of design skills and methods, from visualization of ideas to creative problem solving, and transformative design thinking. They also learn to work with multidisciplinary teams on hands-on projects and in a studio environment.

Minor Requirements

Students must earn 18 credits to satisfy the requirements for the minor in integrated product design. These are distributed as follows:

1. **Foundational design skills (6 credits):** Student must select 3 credits in basic design methods courses and 3 credits in visualization courses from list 1, list of foundational courses with a focus on basic design, visualization, and prototyping: ARCH 100, ARCH 111, ARCH 112, ARCH 313, ENMG 664, GRDS 111, GRDS 141, MECH 201, MECH 421, MECH 522.
2. **Core product design and development (6 credits):** Students must select 6 credits in product design and development courses from list 2: ARDS 400, BMEN 501, CHEN 571, ENMG 663, GRDS 305, INDE 502, EECE 502, CHEN 502, CIVE 402, MECH 502, MECH 510, MECH 525.
3. **Thematic field electives (6 credits):** Students must select 6 credits from at least two categories:

- **Category A:** ARCH 068, DCSN 310, DCSN 340, EMBA 521, ENMG 654, ENMG 655, ENMG 656, ENTM 220, ENTM 230, ENTM 270, ENTM 320, FINA 211, INFO 220 / MKTG 220, INFO 227 / MKTG 227, INDE 412, MKTG 234, MKTG 311, MKTG 312
- **Category B:** ARCH 040, ARCH 060, ARCH 063, ARCH 069, BMEN 608 / MECH 634, CHEN 619, EECE 425 / 625, EECE 487 / 687, EECE 652, EECE 680, EECE 684, EECE 685, EECE 686, EECE 687 / 487, EECE 697 / MECH 646, EECE 698 / MECH 650, GRDS 040, GRDS 043, MECH 617, MECH 631, MECH 632, MECH 646 / EECE 697, MECH 650 / EECE 698, MECH 798C
- **Category C:** GRDS 062, MKTG 210, MKTG 225
- **Category D:** GRDS 033, GRDS 331

Students will follow AUB's regulations while pursuing the minor. University minimum requirements for a minor are as follows:

> A minimum of 15 credit hours earned on the basis of regular graded courses (not tutorial or special project type courses) is required for a minor (refer to the requirements of each faculty/school).
> At least 9 credit hours of coursework must be completed at AUB.
> Each minor must have at least 6 credits exclusive to it, 9 credits may be common with the program requirements of the major field(s) of study.
> Minor courses may not be taken on a pass/fail basis at AUB.

Minor in Urban Studies

The minor in urban studies is open to all AUB students who are interested in expanding their knowledge of the contemporary opportunities and challenges posed by the ongoing transformations of the natural and built environments as the world shifts to a "planetary" urbanization. Through the minor, students familiarize themselves with a range of contemporary debates discussing the implications of urbanization across disciplinary fields. They also strengthen their command over some of the methods and tools used in social and environmental sciences, humanities, and urban planning and design to analyze urbanization processes.

In order to satisfy the requirements of a minor in urban studies, students must earn 15 credits of coursework, as described below.

Students enrolled in architecture, engineering or landscape architecture who hold a minor in urban studies qualify for an advanced standing if they apply for the master of urban planning and policy (open to all students with a first degree in engineering, architecture, landscape, and/or the social sciences) and the master of urban design (open to all students with a first professional degree in architecture and/or landscape architecture).

The minor in urban studies is administered by the coordinator of the master in urban planning and policy and master in urban design programs in the School of Architecture and Design at MSFEA.

Minor Requirements

In order to obtain a minor in urban studies, students must complete fifteen credits distributed as follows:

> Two courses in the general theory/methods framework are required: ARCH 332/URPL 632, and URPL 630/SOAN 210/PPIA 308/PSPA 300.
> Register for the 0-credit seminar City Debates once (URPL 660).

- At least one course about the interaction of urban studies with a professional field is required such as the below (or equivalent, approved by the program coordinator):
  - Design & Landscape: URDS 632, LDEM 301, and LDEM 302.
  - Urban Planning: URPL 631, and PPIA 301.
  - Environmental Studies and Management: LDEM 630, CIVE 565, and CIVE 601.
  - Urban Transportation and Infrastructure: CIVE 686/ARCH 073, CIVE 661, CVE 666, and SOAN 323AG.
- At least one of the special-topics theory courses (3 credits) that intersect directly with the study of the city in the School of Architecture and Design such as (or equivalent, approved by the program coordinator): URPL 621, URPL 637 / ARCH 036, URPL 638 / ARDS 030, URPL 665 / ARCH 065, URPL 669, URDS 624, URDS 632, URDS 634, ARCH 015, ARCH 020, ARCH 021, ARCH 022N, ARCH 305B.
- One of the following courses (3 credits) may also be taken towards the minor in urban studies. Other courses relevant to urban studies may also be eligible, as approved by the MUPP-MUD program coordinator: HIST 263, CVSP 205, SOAN 220, SOAN 216, SOAN 221, SOAN 223, FINA 232, FINA 234, PPIA 310K.

Bachelor of Fine Arts (BFA) in Graphic Design

Program Mission

The undergraduate program in graphic design offers a professional degree with a well-rounded scope covering the multiple practice areas of the discipline. The curriculum focuses on solid training in the theoretical, practical and technical aspects of graphic design, while promoting a socially responsible practice and awareness of both local and international developments in the field. The goal of the program is to produce graduates with expert design proficiencies, grounded in historical knowledge, who are capable of adapting graphic and visual tools to the changing demands of the design industry. Students develop intellectual and critical thinking skills and contribute to aesthetic and technological innovations by generating ideas in response to a wide range of design challenges. The program is committed to the role design plays in the multicultural and multilingual contemporary regional context and provides a creative teaching and learning environment to address these issues.

Program Requirements

The graphic design program is comprised of a total of 139 credit hours normally taken over four years. The curriculum is structured as follows: 1) Two foundation years, first and second, with core requirements in design, typography, representation techniques, digital media, and history courses, which offer students basic skills and knowledge in design and related areas. 2) One advanced year, third year, with core requirements in advanced design, digital media, and theory courses, reinforced by the field electives and General Education requirements. 3) Final year, fourth year, with a one-year design project and advanced electives. In order to pass a year, students must obtain a minimum GPA of 2.3 in both design studio courses offered in any given year. If the design studio average across Fall and Spring of any given year is below C+, students must repeat the design studio(s) in which they received a grade below C+.

The degree requirements in graphic design consist of the following:

- 94 credit hours of mandatory core courses
- 15 credit hours of approved SoAD/MSFEA field electives:
  - 3 credit hours in Category A: Representation
  - 3 credit hours in Category B: History, Theory, and Methodology
  - 3 credit hours in Category C: Digital Media, Typography, and Professional Practice
  - 6 credit hours: choice between A, B & C
- 3 credit hours of free electives in consultation with the academic adviser

To meet the AUB general education requirements (27 credits must be taken outside the department):

- **Understanding Communication (9 credits):** 3 credits in Arabic, and 6 credits in English (ENGL 203 and ENGL 204).
- **Understanding Ourselves (15 credits):** 6 credits from "Societies and Individuals", out of which 3 credits are satisfied by the required GRDS 331 course, and 9 credits from "Cultures and Histories", out of which 6 credits are satisfied by the required ARCH 121 and ARCH 122 courses.
- **Understanding Our Role in the World (6 credits):** 3 credits from "Community Engaged Learning" satisfied by the required course GRDS 203, and 3 credits from "Human Values".
- **Understanding the World and Quantitative Reasoning (9 credits):** at least 3 credits from each. One of the Quantitative Reasoning courses has to be CMPS 207.
- **Thematic Requirements:** Out of the above, 3 credits must fulfill the thematic requirement "Social Inequalities", and 3 credits must fulfill the thematic requirement "History of Ideas" (Must be a CHLA 2xx course).

Curriculum for BFA in Graphic Design

First Year

Fall Term		**Credits**
ARCH 100	Basic Design	6
GRDS 111	Drawing	3
ARCH 121	History of Art and Architecture	3
ENGL 203	Academic English	3
1 General Education Requirement		3
		Total 18

Spring Term		Credits
GRDS 101	Graphic Design I	6
ARCH 122	History of Art and Architecture II	3
GRDS 151	Typography I	3
GRDS 141	Computer Graphics	3
ENGL 204	Advanced Academic English	3
		Total 18

Second Year

Summer Term		Credits
GRDS 212	Photography	3
2 General Education Requirements		6
		Total 9

Fall Term		Credits
GRDS 202	Graphic Design II	6
ARCH 223	History of Art and Architecture III	3
GRDS 252	Typography II	3
GRDS 213	Illustration	3
		Total 15

Spring Term		Credits
GRDS 203	Graphic Design III	6
GRDS 224	History of Graphic Design	3
GRDS 242	Motion Graphics	3
GRDS 214	Printmaking	3
		Total 15

Third Year

Summer Term	Credits
2 General Education Requirements	6
1 General Education Course: CMPS 207	3
	Total 9

Fall Term		Credits
GRDS 304	Graphic Design IV	6
GRDS 331	Introduction to Visual Theory	3
GRDS 361	Professional Practice	3
GRDS 343	Interaction Design I	3
		Total 15

Spring Term		Credits
GRDS 305	Graphic Design V	6
GRDS 344	Interaction Design II	3
1 General Education Requirement		3
1 Field Elective		3
		Total 15

Fourth Year

Summer Term		Credits
GRDS 462	Approved Experience	1 b

Fall Term		Credits
GRDS 406	Final Project Research	4
2 Field Electives		6
1 Free Elective		3
		Total 13

Spring Term		Credits
GRDS 407	Final Project Design Research	6
2 Field Electives		6
		Total 12

Total Credit Hours	139

Course Descriptions

Mandatory Core Courses

ARCH 100 Basic Design 6 cr.
See Architecture section.

ARCH 121 History of Art and Architecture I 3 cr.
See Architecture section.

ARCH 122 History of Art and Architecture II 3 cr.
See Architecture section.

GRDS 101 Graphic Design I 6 cr.
This is an introductory studio on graphic design methods and processes where fundamentals of visual communication are addressed. The studio starts with basic investigations in form making, and gradually moves on to cover more complex components of graphic design dealing with the construction of meaningful visual messages and the organization of information as well as the dynamic interaction of color and its applications. Prerequisite: ARCH 100.

GRDS 111 Drawing 3 cr.
This course is an introduction to visual representation. Students learn drawing skills and pictorial conventions, and consider the historical specificity and contemporary relevance of such skills and conventions.

GRDS 141 Computer Graphics 3 cr.
This course introduces students to digital imaging techniques through computer software learning. Students are introduced to the mac operating system platform and move on to cover basics of industry standard software from vector-based programs (such as Adobe Illustrator) to pixel-based image creation and manipulation (such as Adobe Photoshop), while addressing desktop publishing design programs (such as In-Design).

GRDS 202 Graphic Design II 6 cr.
This studio focuses on principles of identity design through investigations in symbolic graphic representation, logo design, and the development of identity systems using various modes of image making and typography. Prerequisites: GRDS 101 and a combined grade average of C+ (GPA: 2.3) in ARCH 100 and GRDS 101.

GRDS 203 Graphic Design III 6 cr.
This studio addresses graphic design as a cultural practice. It focuses on processes of visual communication where issues of meaning production and exchange are emphasized and critically examined in their relation to particular social contexts and localities. Methodologies of arriving at meaningful graphic solutions—image-type relationships, visual narratives, info-graphics and complex information organization—are explored through diverse theme-based projects and loose-sheet printed formats of public dissemination (posters, book covers, leaflets, maps). Prerequisite: GRDS 202.

GRDS 212 Photography 3 cr.
A course aimed at providing graphic design students with a thorough understanding of the basic techniques and aesthetics of both black and white and color photography through hands-on assignments and darkroom practice.

GRDS 213 Illustration 3 cr.
This course introduces students to illustration techniques and styles with the aim of strengthening their representation and visualizing skills to enrich the graphic design process and its outcomes. Assignments cover various themes while exploring a wide range of media and approaches. Prerequisites: GRDS 111.

GRDS 214 Printmaking 3 cr.
Basic printmaking covers traditional printmaking techniques such as lithography, etching, silkscreen and woodcut. Students acquire a foundation and understanding of print/printmaking techniques and processes through project-based exercises creating unique impressions on various surfaces.

ARCH 223 History of Art and Architecture III 3 cr.
See Architecture section.

GRDS 224 History of Graphic Design 3 cr.
The course will go through key moments in graphic design history surveying some of the most significant periods, dominant styles and influential designers until the present day. The course is conceived of thematically with the intention to address the conceptualization of graphic design as a discipline directed by various interpretative inquiries into the history and theory of graphic communication. The course is formulated in a way that enables students to take part in the current debate around graphic design theory and practice. Prerequisite: ARCH 223.

GRDS 151 Typography I 3 cr.
The course introduces students to Arabic and Latin type and typography, providing the necessary historical, theoretical, and technical knowledge, in combination with applied exercises and projects that aim to enrich the graphic designer's typographic skills. The course is focused on the micro aesthetics of typography and its communicative potential; it begins with building an understanding and sensitivity to the formal and structural characteristics of letters, type styles and related classification, and gradually moves to basics of choosing, combining and working with type to enhance composition, meaning, and readability.

GRDS 252 Typography II 3 cr.
The course is a sequel to Typography I (Typography 1 is now GRDS 151). It builds on the basic skills and knowledge already acquired to move to more advanced applications of Arabic and Latin typography for the design of different kinds of text-based information. New aspects are investigated while maintaining attention to the aesthetic and communicative potential of typography: type setting, color, texture, direction, flow, readability, and context. Prerequisite: GRDS 151.

GRDS 304 Graphic Design IV 6 cr.
The course covers the design of printed publications in their various formats and for various audiences, ranging from mass media (newspapers, magazines, etc.) to special interest publications (fanzines, limited edition books, etc.), where processes of art direction and the design of layout systems for multi-page prints will be covered. While learning to materialize editorial concepts and content into graphic form, students also develop advanced skills in organizing complex information and devising appropriate compositional, typographic and image solutions. Prerequisites: GRDS 203 and a combined grade average of C+ (GPA: 2.3) in GRDS 202 and GRDS 203.

GRDS 305 Graphic Design V 6 cr.
The course covers package design, installations and signage art, and an interactive process between them. Research and analysis are conducted in each individual project. Projects are distributed into experimental and commercial 'real' situation types. Students will develop an understanding and ability to manipulate two-dimensional graphics to three dimensional objects and environments; understand the needs of the market through market research; apply regulations where appropriate; carry the given projects from concept development to the final stage (real situation scenario); and experiment with acquired (design) language and vocabulary. Prerequisite: GRDS 304.

GRDS 331 Introduction to Visual Theory 3 cr.
An introduction to the various debates concerning visual representation aimed towards an investigation of the visual as a social practice and as part of an aesthetic discourse.

GRDS 242 Motion Graphics 3 cr.
This course provides students with the basics of designing for time-based media and the moving image. The course covers animation in its various forms, studying the process in depth from animation principles to concepts and story boarding, to the final output edited with the soundtrack. Students will be exposed to and use various techniques of animation, from the classical hand drawn frame by frame animation, to experimental stop motion animation, and computer-based motion graphics title sequences, infographics, and TV branding. Prerequisite: GRDS 141.

GRDS 361 Professional Practice 3 cr.
This course prepares students to face the real world of the graphic design profession. Lectures, readings and field research along with hands-on assignments are given to assist students in writing their CVs and preparing their portfolios, learning about basic business practices (public relations, client handling, invoicing and billing, time management, work flow, etc.), in addition to building knowledge about pre- press production and production techniques essential to the design practice. Prerequisite: GRDS 203.

GRDS 343 Interaction Design I 3 cr.
In this course, students learn to design for interactive media while building on the skills acquired in previous design studios. The course covers the principles, methods, and tools to plan, organize and implement interactive content ranging from interface design to digital publishing and best practices in typography, navigation, and information design. Students acquire an understanding of structuring and representing information, properly integrating elements of text, image (still and moving), audio, and video to create and deliver different interactive experiences. The course also covers the foundation of font-end programming language and software used by the industry. Prerequisites: GRDS 141 and GRDS 242.

GRDS 344 Interaction Design II 3 cr.
This course provides students with practical knowledge and implementation of user experience design. It focuses on the principles of human-centered design and interaction, the interface between humans and technology, understanding and defining user behaviors, designing for multiple platforms and multi-sensory experiences. Students explore the process of user research, prototyping concepts, usability testing, evaluation of multimedia, accessible and inclusive design. They acquire knowledge and hands-on-experience by designing for different user experiences, including interfaces (screens), systems, products and spaces. Prerequisites: GRDS 242 and GRDS 343.

GRDS 406 Final Project Research I 4 cr.
In this course, students start a year-long design investigation of a research topic and a project of their choice. The process begins by submitting a proposal in which they identify the project's design statement(s)/question(s), define its framework, and set its aims. Throughout the term, students, with the guidance of a panel of advisers, will conduct the necessary research, reflection, sketching, and experimentations that would enable them to refine their initial proposals, respond to its questions, argue their position and, accordingly, arrive at a well-defined design concept statement and a concrete design project proposal. The work will be synthesized in a dossier of research and design experimentations to be submitted at the end of the fall term, allowing students to move to the design implementation phase in the following spring. Prerequisites: GRDS 304 and GRDS 305, and a combined average of C+ (GPA: 2.3) in GRDS 304 and GRDS 305.

GRDS 407 Final Project Design Research 6 cr.
This is the second half of a year-long design project and the culmination of the design studio training. Students integrate and synthesize acquired knowledge and skills, and elaborate, through concrete design experimentation and implementation, the design proposal developed in GRDS 406 with the aim of arriving at a completed graphic design output by the end of the term. Students work independently and in consultation with a chosen adviser from the faculty. Work in progress is presented and discussed with a panel of advisers over the course of the term. The completed projects are presented for evaluation to a jury of faculty members and invited professionals. Prerequisite: GRDS 406.

GRDS 462 Approved Experience 1 b.
This is an eight-week professional training period at a recognized graphic design studio or graphic design department within a web design, television station, advertising agency, publishing house or other approved workplace in Lebanon or abroad. The training should ensure students apply their knowledge and acquire professional experience in the field of graphic design.

For other mandatory core courses such as ARCH 121, ARCH 122, and ARCH 223, refer to the architecture core course descriptions.

SoAD Elective Course Offerings

The elective courses in the Department of Architecture and Design are distributed into three main categories and are subject to change as new electives are introduced every year. Some electives are open to students in all faculties.

Category A: Representation (ARCH 01 and GRDS 01).
Category B: History (ARCH 02 and GRDS 02) and Theory (ARCH 03 and GRDS 03)
Category C: Technology (ARCH 04), Engineering (05), Professional Practice (ARCH 06, GRDS 06), Digital Media (GRDS 04) and Typography (GRDS 05).

Electives are chosen in consultation with the assigned adviser and in accordance with the load distribution.

Category A: Representation

ARCH 010 Photography 3 cr.
This course aims at providing architecture students with a comprehensive understanding of the basics of black and white and color photography, its techniques and aesthetics. Students learn how to use their cameras and light meters and are taught, through hands-on practice, the fundamentals needed in traditional black and white printing in the darkroom. The course includes slide lectures and discussions around the works of classic masters and contemporary experts of the medium, field trips, as well as presentations by well-established photographers specializing in architectural photography.

ARCH 011 Imaginary Landscapes: Utopia and Architecture 3 cr.
Although utopia does not belong to a particular field of research, it often relates to architecture, representing a delicate discrepancy between 'ideals' and 'space.' It has always been the concern of architects and designers to imagine utopias, so much so that the history of architecture may no longer ignore this literature and abundant work that relates the sociopolitical and economic field to spatial manifestations of desires and dreams.

ARCH 015 Micro Infrastructure 3 cr.
Micro Devices is a course that teaches visualization and diagramming as analytical methods to pursue research on a specific local infrastructural problematic (water, transportation, energy, etc.). The aim is to rigorously tackle that infrastructural issue through mapping and diagramming to produce a visual pamphlet while proposing hybrid and speculative design interventions.

ARCH 017 Remaking our World: Designing for Cinema 3 cr.
This course examines how shifts in urban form and plans for development or reconstruction give rise to cinematic representations. We will also look at how discourses of cinema and their production and design process affect architecture, urbanism, and our experiences in the city. In addition, through a workshop, we will get our hands dirty with cameras and experiment with a few short clips ourselves.

ARCH 018 Counter-Fiction as Narrative 3 cr.
The course introduces counter-fiction as a productive method of exercising design imagination and an alternative tool for design realization and presentation. Students will use museum collections and archives as a context to develop counter-fictional plots based on relevant historic events. These reimagined plots will be explored visually across different media. The course is divided into three parts: method development, visual interpretation and research, and project development and presentation. The course is a workshop and seminar, and open to architecture, graphic design, and other students.

GRDS 018A The Photographic Archive: Memory, Identity & Preservation 3 cr.
This course engages with photographic archives as a means of documenting, preserving, and reinterpreting history, memory, and identity. Through theoretical discussions and practical applications, students will engage with found images, family archives, and institutional collections. The course encourages critical thinking about the role of archives in shaping cultural narratives and personal histories. Students will develop their own archival-based photographic projects, experimenting with techniques such as re-photography, appropriation, and visual storytelling.

ARDS 010 HyperMedia: Emerging Methods of Representation 3 cr.
Hypermedia focuses on the play between space, visual design, screens, and technology, exploring new methods of representation that alter us and our surroundings. This experimental course hybridizes artistic practices and innovative thinking, ushering a philosophy where art is multi-disciplinary, and our relationship with technology is based in aesthetic philosophies. In hypermedia, the goal is to influence what we see with technological tools, in order to create hyperreal versions of our world - both still and in motion. It is fun, imaginative, and wholly unconventional.

GRDS 010 Digital Illustration 3 cr.
This course focuses on developing technical proficiency with digital tools to build an advanced understanding of illustration principles. The class covers essential skills required for working with illustration, ranging from character and environment design to translating complex ideas with maximum clarity and audience engagement. Additionally, this course will emphasize a methodical sketching process that integrates traditional drawing techniques with digital solutions to better prepare students for working with illustration in the professional practice.

GRDS 012 Silkscreen 3 cr.
This course teaches students the fundamental principles of silkscreen printing and to be creative in their approach to printmaking. Silkscreen, one of the most versatile and widely used methods of printmaking, will be fully explored in this studio class through demonstrations and self-initiated projects. Students will be encouraged to experiment with multiple techniques and combinations of traditional and contemporary methods of serigraphy, and search for solutions that best translate the nature of their work to the medium. Prerequisites: GRDS 214, ARCH 112 or FAAH 202, and FAAH 234.

GRDS 014 Engraving and Etching 3 cr.
This course is an exploration of intaglio printmaking processes. It covers the non-acid methods such as engraving, dry point and mezzotint and acid methods like etching (hard and soft ground) and aquatint. This studio art course covers the needed technical information; however, emphasis will not only be placed on the technical production of art works but also on the content and concepts of printmaking. Prerequisite: GRDS 214, ARCH 112 or FAAH 202.

GRDS 015 The Artist Book 3 cr.
This course examines how books have become a recognized way of making art and introduces students to techniques of making books-by-hand through incorporating traditional techniques like letterpress, etching, relief, stenciling, stamping and photo etching to make texts and images. This course also introduces students to different techniques of bookbinding in order to produce an artist book. Prerequisite: GRDS 214 or FAAH 202.

GRDS 016 Advanced Photography 3 cr.
This course engages students with artistic photographic practice by encouraging them to make photographs that respond to and challenge issues raised through class discussions and assigned readings. While focusing on contemporary aspects of photography, students are expected to intensively produce their own works with the objective of developing their individual visual language. Weekly practical assignments are designed to push students to explore questions in current photographic practice as they relate to the history and development of the medium. A conversation on photography as a thought process is emphasized through readings, class presentations and slide lectures, in parallel to a visual and conceptual exploration through practical assignments. Prerequisite: GRDS 212.

GRDS 017 Elastic: An Intro to Generative Art 3 cr.
The class introduces students to coding through the language of processing, an opensource “programming sketchbook”: They will learn to draw static images and transform them into moving and interactive compositions; they will input sounds or other stimulus and create the recipes for them to become visuals. All the while, they will be placing these experiments within a theoretical framework of abstraction, autonomy, and algorithmic creation. What are the similarities between programming and the formative centuries of Islamic art? early 20th Century art movements? Mid-century art movements? This two- fold approach of practice and history hopes to form a well-rounded context of the skills acquired and hence a critical stance on the programming tool.

GRDS 019 Childrens’ Book Illustration 3 cr.
This course provides an in-depth exploration of children’s book illustration, focusing on a variety of techniques, character design, story development, and the creation of illustrations for children’s literature. Students will build on the skills acquired in their core illustration course to engage in hands-on illustration projects that consider a range of children’s book types for a variety of age groups from young children to young adults. These projects will allow students to see the illustrated children’s book as a distinct genre, develop enhanced skills in digital and traditional media techniques, and learn storyboarding, storytelling, and narration methods. Through critiques, discussions, and research, students will develop a robust understanding of the narrative, educational, and entertainment power of Children’s Literature Art. Prerequisite: GRDS 213.

Category B: History and Theory

ARCH 020/URPL 626 Interwar Urban History 3 cr.
This course explores the momentous urban transformations across the world during the interwar, a period when cities became more populous, complex, sophisticated, and contested than ever. From Berlin and Rio de Janeiro to Beirut and Calcutta, cities went through major physical and social transformations during the interwar. In addition to the advent of international modernism in architecture, the emergence of urban planning as a discipline shaped urban forms and infrastructures in radical ways. This course embraces a global urban history approach, examining the parallel and divergent ways in which cities responded to the political, economic, and social challenges of the interwar. There are three modules in this course. The first involves contestations over cities, focusing on the issues of how political struggles crystallized in urban spaces; how the nascent notions of urban rights mobilized masses into action; and the role of heritage in a modern city. The second module is about physical interventions in cities and the disciplinary apparatuses that shaped them. This module explores the institutionalization and dissemination of urban planning; infrastructural modernization; housing; and real estate. The third module moves on to the realm of representation. It focuses on how cities figured in some of the notable literary, artistic, and cinematic works of the interwar.

ARCH 020A Spatial Politics of Revolution: from Tehran to Beirut 3 cr.
Tehran and Beirut have their differences in size, population, geography, politics, economy, and urban form. They have both had their fair share of conflict and upheaval. Both cities suffer from a lack of basic services, extreme pollution, congestion, and a socio-economic divide that manifests itself in all aspects of daily life and result in perpetual social upheaval and unrest. This seminar builds on the premise that urban form is a vessel for social norms and cultural practices. Once this urban form is removed, new norms and practices must be created, which can lead to social unrest and upheaval. Examples of this abound in modern history, some of which have resulted in successful revolutions.

ARCH 021/URPL 622 Istanbul: From Imperial Capital to Global Metropolis 3 cr.
This is a thematic course on the architectural and urban history of Istanbul from the mid fifteenth century up to the present. The course explores the built environment of Istanbul at different historical moments focusing on such themes as imperial ideology, patronage, cross cultural encounters, gender, multiculturalism, nationalism, globalization, informal settlements, and gentrification.

ARCH 021A Material Activism and the Aesthetic Regime 3 cr.
This course examines the epistemological shift from speculative and critical theory toward more engaged, embodied approaches to material reality and aesthetic theory during the transformative first quarter of the 21st century (2000-2025). Through rigorous analysis of architectural and design responses to contemporary crises, including climate emergency, political polarization, economic stratification, and technological disruption, the course interrogates emergent post-millennial theoretical frameworks that have reshaped disciplinary boundaries. Through case studies in urban planning, community development, spatial design, and architectural innovation, students will analyze how aesthetics have constructed “counter-regimes” that challenge normative configurations of design’s relationship to power structures and social transformation. This investigation will emphasize the dialectical relationship between aesthetic discourse and a material reality in addressing urgent socio-cum-political and environmental imperatives of our time.

ARCH 021B Design Beyond Anthropocene 3 cr.
This course equips senior students in architecture, landscape architecture, and urban studies with the conceptual vocabulary and research skills necessary to practice responsibly in an era of planetary disruption and colonial dispossession. The course is structured around two complementary tracks: a shared research and writing program organized through four discipline-spanning research teams, and two parallel design projects calibrated to each discipline's spatial concerns: one focusing on urban informal settlements for architecture and urban studies students, and one focusing on ecologically destroyed periurban and rural landscapes for landscape architecture students. Theory and practice do not run in separate lanes: ideas encountered in shared seminars and research are immediately tested, challenged, and materialized through spatial propositions, written arguments, and documented fieldwork.

ARCH 022N The Politics of Arab Modernism 3 cr.
This course explores the development of modern architecture and art in the Arab World from the late nineteenth century to the present, examining how architectural and artistic practices have responded to, influenced and shaped social, cultural, and political contexts in the region. Through an interdisciplinary approach, the course addresses the complex interactions between local traditions and global modernist movements, focusing on topics such as colonialism, nation-building, identity, ad urbanization. The course aims to foster critical engagement with how modernity has been expressed and adapted in the Arab art and architecture, highlighting regional narratives that challenge and expand the Western-centric historiography of modernism.

ARCH 024/URDS 624 Hybrid Beirut: Morphogenesis of the Contemporary City 3 cr.
Looking East and West, Beirut has developed its own response to early modernization through the assimilation of Western urban models and architectural trends. The resulting cultural hybridity and townscape diversity can only be understood by exploring the transitional years of the city formation and transformation from a medieval Arab-Islamic town in the 1840s to a showcase of the French Mandate in the Levant in the 1920s and 30s. This course is an attempt to read contemporary Beirut through its recent colonial past, and to trace the continuity and change in its social, economic, and cultural conditions as mirrored in the urban structure and building typologies.

ARCH 027 Regional Architecture: Lebanon 3 cr.
This course presents various aspects (mainly physical and social) of regional architecture in Lebanon, covering a period of over a century and a half (1970-1820). It introduces students to various typologies of local architecture, based on case studies of the city of Beirut as well as other rural areas in Lebanon. It also examines the importance of heritage architecture in shaping urban neighborhoods and socio-spatial practices and introduces urban renewal strategies in areas facing various forms of dilapidation.

ARCH 028 Generative Tropes of Contemporary Architecture 3 cr.
At the cusp of a new digital era, that of the parametric, laden with scripted form and built with a combination of digital and manual fabrication tools, this seminar will consider the production of architecture in the past two decades in search of formal tendencies– tropes or systems— that have been repeatedly utilized in the production of contemporary architecture. By categorically identifying these 'tropes,' the overarching pedagogical agenda of this seminar is to enable students to develop tectonic and formal literacy. The first part of this seminar will involve a survey of contemporary architecture in order to identify and categorize recurring formal tropes while introducing students to a thematic lexicon in contemporary architecture. The second part of the seminar will include projective and analytical diagramming of select buildings in order to identify part-to-whole relationships as generative tools in production of contemporary architecture while investigating the possibilities of genealogical relationships within the categories.

ARCH 031 On Housing 3 cr.
The course will expose students to housing typology, the study of housing types, through the intensive use of drawing as a critical tool of analysis and representation. Housing types will be analyzed using key local and global case studies drawn from the histories of architecture. Types are understood as distinct architectural inventions that are open to change and mutation. Questions related to the shifting boundaries between private and public, changing demographics, work/life patterns, climatic response and affordable housing will be addressed through the transformations of type.

ARCH 032/URDS 634 Contested Urban Heritage: Reconstructed Cityscapes 3 cr.
The seminar focuses on urban heritage and the politics of its identification, conservation, and reproduction in relation to processes of nation building and postwar reconstruction in the Arab world. The principal theoretical position recognizes heritage as an intrinsically contested notion. The seminar is interdisciplinary in its approach and aims at understanding urban heritage, not only as a historical product, but also as a negotiated entity reproduced every day through the dynamics of city life; social, economic, and political. Class discussions are set against theoretical works that include Bourdieu's Field of Cultural Production, Boyer's City of Collective Memory, Barthes' Semiology and the Urban, Lefebvre's Production of Space, Hewison's Heritage Industry and Hobsbawm's Invention of Tradition.

ARCH 033 Building Texts 3 cr.
The course investigates how the design of identities evolved in response to distinctive industrial, corporate, cultural and political sectors of operation, how it behaved independently across separate historical contexts, and how divergent trends ultimately converged into a homogeneous model built around the concept of the brand, deployed today to uniquely distinguish everything from business services to ideological views. Students will be exposed to and get to research the work of seminal identity designers/studios and landmark identity design programs, and examine cases of a less iconic nature that challenge common generalizations about the practice. Alongside this historical investigation, students will be introduced to critical viewpoints around the practice of identity design by examining a body of literature comprising key texts on the subject.

ARCH 036/URPL 637 Illegal Cities 3 cr.
The seminar is designed as an introduction for students enrolled in architecture, urban planning and policy, and urban design to the ongoing debates about the relationship between law and the building process, specifically by looking at its actual materialization in illegal/informal settlements. It is based on a combination of lecture/seminar sessions in which various theorizations of the city/law nexus are explored and on field studies/class discussions in which the applications of these theories are investigated using a local case study.

ARCH 037 Cities After War 3 cr.
This course explores cities after war by investigating the evolution of reconstruction interventions on devastated landscapes in the US, Europe, and the Middle East from WWI until the present. The focus will be on Lebanon as a primary laboratory of postwar reconstruction in the 1990s and 2000s, from which to explore, evaluate and generalize. The two poles of investigation are: morphologies of destruction and dialectics of reconstruction, emphasizing four generic geospatial contexts: 1) urban central district restoration, 2) suburban neighborhood rebuilding, 3) refugee camp reconstruction and 4) rural landscape recovery.

ARCH 038N/ URPL 631 Introduction to Planning Theory and Policy 3 cr.
This course is designed to introduce students to current debates and practices in the field of urban planning and design in lower income countries. It looks at how, where and by whom interventions in the city are being generated and how the goals of such interventions have evolved over the past decades. The course is conducted in seminar format where students learn to discuss and interpret approaches and test their applicability to the local and regional context of the Middle East. Special value is placed on allowing students to articulate their own positions as professionals.

ARCH 039N/ URDS 632 Practices and Theories of Urban Design 3 cr.
This course explores the changing conception of city space examining the shifts in environmental design theory and practice from the 1970s until now. The class covers the foundation of urban design as a traditional discipline while opening up to emerging design ideologies and tactics in response to contemporary urban mutations. The course appeals to students in architecture, landscape architecture and physical planning who are interested in crossing the boundaries between disciplines and exploring new potentialities in design thinking.

ARDS 030/URPL 638 Politics of/in Design 3 cr.
This seminar is about the ways design participates to the production and distribution of political power and resources in cities, territories, and societies. In this view, design is not a neutral creative/technical process creating innovative solutions or improving value (of aesthetics, functionality, livability…), but an integrated process shaping these solutions and values. How does design participate to the production and distribution of political power and resources in cities, territories, and societies, covertly or overtly? How does design enable humans, non-humans, and landscapes gain/lose agency? What dominant forces and structures include/exclude from design processes, and how? How can designers uphold values of equity, livability and viability in their practice? We discuss these questions across the disciplines of graphic design and visual production, data science and engineering, architecture and landscape architecture and urban planning and design.

GRDS 030 Turning Towards Conflict 3 cr.
This course inquires how we, as artists, designers, writers, and makers, can critically, meaningfully, and admittedly leisurely turn towards conflict. It is a seminar class in the history/theory category. It will therefore develop from student-led presentations and in-depth discussions of a complex set of overlapping topics: aesthetics and politics, poetics, representations of violence and other relevant themes that will organically emerge throughout the term based on the students' research interests.

GRDS 033 Pre-Brand: A History of Identity Design 3 cr.
The course investigates how the design of identities evolved in response to distinctive industrial, corporate, cultural and political sectors of operation, how it behaved independently across separate historical contexts, and how divergent trends ultimately converged into a homogeneous model built around the concept of the brand, deployed today to uniquely distinguish everything from business services to ideological views. Students will be exposed to and get to research the work of seminal identity designers/studios and landmark identity design programs, and examine cases of a less iconic nature that challenge common generalizations about the practice. Alongside this historical investigation, students will be introduced to critical viewpoints around the practice of identity design by examining a body of literature comprising key texts on the subject.

Elective Courses Category C: Technology, Professional Practice, Digital Media, Typography and Urban Studies

Technology

ARCH 040 "Making It": Models and Prototypes of Complex Structures 3 cr.
Design and technology studies in schools of architecture are based on the making of things, how they perform in the environment, the experience of the results and their cognitive interpretation. The scientific knowledge and technical expertise available for architecture are extensive and their rate of change is substantial. The course seeks to develop the ability to learn how to learn, a vital necessity for innovation. The teaching focus is on craftsmanship, innovation, conceptual and lateral thinking, new technologies, construction, interdisciplinary work and collaboration with industries.

ARCH 041 Lighting Design 3 cr.
The course is one of the requisite tools of design. An architect or environmental designer has the ability to render the architectural form with light and to use lighting distribution, intensity, color and modulation to conceive a desired effect. Additionally, light can set the mood for a space – a critical step in the design process.

ARCH 042 Collaborative Research Workshop 3 cr.
This course operates as an intensive multidisciplinary digital design workshop, aiming at engaging undergraduate students in a lab-based research environment. It aims at forging collaborative research projects among faculty and among students at AUB, linking art, craft, engineering, science, and technology with design. The course will engage in experimentation with materials and technology to develop collaborative projects that can impact the built and human environment, intersecting research methods with digital fabrication techniques the outcome of the course will be to produce a common physical outcome either as a built 1:1 scale intervention or as a physical prototype. Prerequisite: senior standing or consent of instructor(s).

ARCH 043 Assembling It All 3 cr.
This course teaches students how to develop innovative assemblies that allow the creation of advanced architectural facades, envelopes, roofs. The course bases itself on the knowledge acquired by the students in the two preceding building construction courses, about a building's materials, construction typologies and their detailing. It aims at advancing the students design and detail creation skills and know-how by teaching them how to use, adapt, modify and re-assemble building parts to create custom tailored assemblies of building envelopes to respond to specific conditions and design desiderata. To do so, the course analyzes detailed assemblies of envelopes made of various materials: precast concrete, GRC, metal skins, meshes, glass and polymer assemblies in addition to detailed assemblies for roofs clad with metal, glass, polymers.

Architecture Professional Practice

ARCH 060 Algorithm and Iteration 3 cr.
Using Grasshopper/Rhino 3D as the main software platform, the course explores the concepts, tools and ways in which parametric programming can lead to greater integration of concept and execution in architectural design.

ARCH 061 DI-LAB Design-Impact Laboratory 3 cr.
DI-LAB course is designed to engage a group of young architects and engineers in designing and implementing community-based projects in Lebanon. It is a one-of-a kind platform that provides design and engineering services intended to improve the living conditions of marginalized and neglected communities. It aims for a participatory process that engages the beneficiaries and users in order to incubate sustainable development. DI-LAB is organized by the American University of Beirut, Department of Architecture and Design and the Center of Civic Engagement and Community Services (CCECS).

ARCH 062/URPL 665 Development and Planning Policies 3 cr.
The course examines development and spatial planning projects and policies. It investigates policy governance and institutional setup, the role of professional expertise, and the spatial impacts, as well as the social and environmental impacts, on the built and un-built environments. Using case-study analysis of selected cities and towns, the course investigates how policies are elaborated through the use of chosen models, approaches, strategies and tools, privileging certain sectors and for specific ends.

ARCH 063 Do It, Then Fix It As You Go 3 cr.
The course introduces students to alternative ways in starting a design project, whether an object, an installation or a building. It is mainly a hands-on set of small exercises, through modeling, observing and description in a lab-like manner. Through these exercises, students will slowly discover how a ready-made can influence, guide and affect the course of evolution of a project and help in generating new ideas. The ready-made is a mindset preparation that will allow students to deconstruct preconceived ideas about design putting aside all a priori. The aim of such a methodology, that seems unrelated to the subject, will unknowingly allow them to lose their familiarity with the “project-to-be” and see it under a new light. This confrontational process has proven to be a dialectical tool that can be applied to any scale from a small object to an urban scale project. It is a method of work, a line of thought, a new line of investigation.

ARCH 064 Inclusive Design 3 cr.
The material in this course is designed to provide a detailed introduction to the inclusive/ universal design philosophy and a theoretical understanding of design tools and techniques.

ARCH 065 Architecture and Culture: Geometry and Design 3 cr.
The course will analyze cultural disciplines, meaning and practice in Islamic architecture from classic to contemporary works. Recognizing the paradigms of Islamic architecture, the course will concentrate on the essential role of geometry in design and urban planning. There will be an in-depth review and discussion of the direction and influence in design, with attention drawn towards a better understanding and discussion of the creative processes relevant to Islamic architecture and the crafts. Living and historic examples will be drawn from Andalusia, North Africa, the Middle East, Turkey, Iran, Arabia and the Indian subcontinent. A workshop will be conducted in Tunis, Fes, or Cairo at the beginning of the term.

ARCH 066/URPL 669 Building and Planning Codes 3 cr.
The class focuses on the spatial and design aspects of property development codes, offering both normative outlook and practical application. The course covers such topics as controls and regulations on development intensity, bulk, accessibility, egress, and health and safety. In a comparative approach, a theoretical overview of planning and building codes from the American context (with reference to best practice planning zoning acts and the international building code) will be used to study the Lebanese code.

ARCH 067D/ URPL 670 Becoming Computational 3 cr.
This course introduces contemporary topics in design computation and digital culture through a mixture of workshops and discussion. The course will survey a selection of theoretical and technical approaches to digital and spatial imagery that are enabled by procedural modelling, the production and incorporation of data within the design process, and mutability of new media. The rapid pace of developments in generative AI—particularly as a visualization tool—and incorporation of both AI and machine learning tools in design and modelling software means that the specific topics will change across course offerings. See the current thematic in the Course Description for further details. Coursework will be produced primarily with Grasshopper for Rhinoceros. Prior expertise in Grasshopper will be helpful though not strictly required. Despite the advanced level of topics covered, the workflows should be accessible to an enthusiastic novice.

ARCH 068 Design Innovation and Entrepreneurship 3 cr.
This course introduces the relationship between architecture and design, entrepreneurship, and business innovation, where students are invited to engage their skills beyond the architecture and design fields. The course underlines the role of design thinking as a core trigger to recognizing opportunities and processing them into innovative and successful ventures. With a focus on case studies of start-up companies, the course includes subjects such as establishing a clear project vision, assessing its business prospects, designing a solid business model, and developing a creative implementation strategy.

ARCH 069 New Territories 3 cr.
The course introduces students to digital design and fabrication through lectures and an applied project in which they will test and experiment with new digital and fabrication techniques. Digital fabrication, between advancements in software, simulation, and machinery, is pushing practice today towards more complexity. These techniques have set forth a revolution in the way we make buildings, where the process of making has radically changed from the traditional sequence of design-analyze-build to a more interactive and integrative process that intercrosses analytical tools with design, simulation and fabrication.

CIVE 601/URPL 641 Introduction to GIS and Spatial Analysis 3 cr.
This course offers an introduction to geographic information systems (GIS) as applied to urban and regional planning, community development and local government. Emphasis is placed on learning GIS technology and spatial analysis techniques through extensive hands-on exercises using real-world data sets such as the census of population and housing. The course includes a small project on an urban planning problem involving the selection of appropriate methods, the use of primary and secondary data, computer- based modeling and spatial analysis.

URPL 664 Urban Land Use Planning 3 cr.
This course examines the theory and practice of land use planning as it has developed within the wider practice and theorization of planning. The course explores the ways in which land use controls have been developed and managed in different institutional and regional contexts, unraveling the different conceptualizations of planning that support each of them. Special emphasis is placed on the case of Lebanon where the practice of land use planning is explored through a detailed introduction to planning institutions, agencies, and regulations.

CIVE 661/URPL 666 Urban Transportation Planning 3 cr.
An introductory course on methods and models used in transportation planning with emphasis on the urban context. Topics include travel patterns in urban areas, data requirements for planning and data collection techniques, transportation/land- use interaction, travel demand and network models, transport supply options and evaluation techniques.

ARCH 070 Parametric Mapping and Analysis Algorithms 3 cr.
Students learn to extract geometric, climatic, and topographic data from local climatic statistical and satellite info using parametric tools such as grasshopper and building physics platforms such as energy plus and open studio. The charted data is applied through digital simulations to test the environmental and topological performance of massing and the built environment in a specific context. Students will also use optimization algorithms to test the best-fit iterations to the required parameters. The course outcome will help generate possible topological solutions and environmental strategies to adopt in a specific climate and context. Prerequisite: period ARCH 060.

ARCH 071 Research and Practices of Public Interest Design 3 cr.
The course explores Public Interest Design (PID), an approach where architectural projects result from a participatory approach involving the community in the design process. After mapping the different stakeholders involved in PID, students have the opportunity to survey needs of targeted communities and research methodologies and case studies that helped achieve humanitarian designs. Based on partnerships and a collaborative approach, students develop conceptual project proposals which contribute to solving issues affecting our society today.

ARCH 072 Earth: Design and Building 3 cr.
The course will investigate the developed techniques and creative design in earth architecture, from brick to city making. We will examine natural materials: stone, mud brick (baked and sundried), pisé or rammed earth, salt, coral rock, and shale. This architecture was integral to the environment and settlement patterns (urban and rural) of different cities, towns, and villages, hence its considerable ecological and sustainable impact. The course is based on first-hand materials, projects and living examples from contemporary sites across the region (Spain, Morocco to the Indian subcontinent) and modern earth projects globally (Previously ARCH 039).

ARCH 073 Sustainable Built Environments 3 cr.
A course that enhances knowledge pertaining to design aspects and application possibilities of climate responsive and environmentally friendly buildings. The impact of using construction building materials throughout the lifecycle of projects will also be discussed. At the end of the course, students will be equipped with the necessary knowledge that will enable them to make informed decisions regarding green projects in their careers.

ARDS 060/ ENMG 664 Introduction to Human-Centered Design 3 cr.
This course introduces students to human-centered design approaches for creative problem solving. Human-centered design (often referred to as “design thinking”) begins with a deep understanding of people — their experiences, attitudes, behaviors, environments, and social contexts. The course will include fundamental readings in design thinking, interactive design methods and processes, and real-world, hands-on projects. Students will learn how to conduct design research, make sense of qualitative data, focus on meaningful interventions, and create products, services, and/or experiences to address user needs.

Digital Media

GRDS 040 3D Animation 3 cr.
3D animation is an advanced course designed for students who are well versed in both concepts and technical research. The course builds the fundamental understanding of 3D computer modeling, texture mapping, lighting and camera rendering in order to develop 3D animated sequences. The course then introduces students to advanced 3D character modeling, rigging and animation. Student projects combine 3D animation and different output formats, like interactive techniques and motion design. Prerequisite: GRDS 343 or consent of instructor.

GRDS 043 Advanced Digital Animation 3 cr.
Building upon the foundations of the motion graphics course, this elective will explore the impact of time-based media on visual communication by focusing on three areas commonly dealt with in the field: translation of information datasets into time-based media, and how the mapping of this visual information can be augmented through time and motion sequences. Creating “hero characters” within a sequential narrative, identifying characteristics of the lead elements (humanoid or design-based) and rendering these “personalities” in the way they move.

GRDS 046 Arabic Type in Motion 3 cr.
This course focuses on the integration of Arabic typography into motion design, recognizing its increasing importance in the graphic design field. While kinetic type is prevalent in digital media and branding, Arabic script often lags behind Roman type in this context. The course aims to bridge this gap by exploring the unique features of Arabic script, such as its anatomy, right-to-left direction, and connectedness (cursivity) to create innovative, kinetic Arabic typography. Students will engage in practical projects, discussions, and research to bring static Arabic text to life, addressing technical challenges along the way. Additionally, the course will cover the history of Arabic typography in screen-based media, offering insights from industry professionals.

GRDS 063 If Walls Could Talk/ Talking Walls: Urban Graffiti Animations 3 cr.
A course offered to architecture and graphic design students covering the techniques, principles, and processes of stop motion animation, particularly focusing on painting on walls and urban surfaces. Students are encouraged to explore the relationship of the method of expression and techniques employed with the concepts, themes, and issues, using alternate interpretations beyond the literal and classical narrative constraints. Students will be examining motion, tempo, rhythm, depth, color, texture, form, matter and spatial representation and relation. By the end of the course, students will produce a complete edited stop motion animation short film that will be publicly screened in the original setting. Prerequisite: GRDS 305 or consent of instructor. For architecture students only.

Typography

GRDS 051 Kinetic & Interactive Type 3 cr.
Kinetic & Interactive Typography is an introductory course that explores coding and movement in typography. Through different projects, students experiment with new ways of interacting with type on digital devices through motion, variable fonts, and creative coding. Also, through lectures, discussions, and projects, students critically engage with the visual and social impact of moving text across different media. They also learn about the history and aesthetics of computer art, while exploring generative art using typography in both formal and critical ways. This course also contains experimental calligraphy, lettering and print components. This elective is for senior students who have already passed CMPS 207.

GRDS 053 Advanced Arabic Typography 3 cr.
In addition to a new and summarized historical overview, the study of Arabic calligraphy involves dealing with the problems facing this traditional art in its efforts at modernization, innovation, and adaptation to new technologies. This consists of two approaches to the subject, one that looks at the Arabic script, calligraphy, as an art by itself and the other that ponders its reformist and media function or its applications in modern life. Prerequisite: GRDS 252.

GRDS 050 Arabic Type Design 3 cr.
This course is an introduction to Arabic type design. It focuses on the skills and critical thinking required to design and produce digital typefaces. Lectures will take students through the history, technology and contemporary practices of the industry that has started to take shape during the past 20 years. Basic lettering skills will be explored to aid in the primary focus of creating a functional, flexible, and useful Arabic typeface. This course will enhance an understanding of the link between writing by hand, lettering, and type design; that is, the transition from script to digital.

Graphic Design Professional Practice

GRDS 024 – Designing the Arabic Book 3 cr.
Designing the Arabic Book — Visual Histories is a professional elective in graphic design that explores the book both as a functional object and as a medium of artistic expression. It is an advanced course in publication design that combines a historical approach with practical work, through lectures, discussions, and projects. On the one hand, the course examines reading practices and interrogates the history of the Arabic book, looking at the codex manuscript, the typeset book, the modern artist book, and various contemporary book forms, including the picture book. On the other, it responds to these bookmaking traditions using a selection of historic and contemporary techniques, manual and digital. Students are required to design three books that are in dialogue with the historical contexts and the bookmaking practices and forms covered in the course. Beyond being contemporary takes on these book forms, the designed publications react to the material examined and studied, culminating in the creation of their own artist book. The materiality of books (format, structure, handling, flow, binding, paper, etc.), as well as their visual characteristics (page layout, typography, hierarchy, marginalia), etc. will be covered to create unique design objects. Prerequisite: GRDS 304.

GRDS 060 Critical Mapping 3 cr.
The course aims to introduce students to the possibilities of mapping as a research method and tool of visual representation. A critical understanding of the history of cartography and mapping practices combined with a theoretical positioning of the map as a socio-political product supports and informs the practical dimensions of the course. Prerequisite: GRDS 203 or ARCH 203.

GRDS 061 GraFix in the Environment 3 cr.
We are bombarded daily with visual clutter, noise, buildings, people, beggars, cigars, clothes, shops, garbage, cars, horns, broken sidewalks—you name it! Then there are signage, posters, and billboards. All are components of our GraFix in the environment. This course is based on research, presentations and a series of small projects illustrating the various aspects of 'GraFix.' Prerequisite: GRDS 203 or consent of instructor. For architecture students only.

GRDS 062 Brand Inc. 3 cr.
This course offers in-depth examination of branding – an increasingly common and central specialization in the contemporary graphic design profession. While looking at the history of the practice and the ways it has been (and is being) critically theorized, students will engage in a series of practical assignments, investigating and addressing existing local cases. In addition to the brand design component and its visual and verbal manifestations, the assignments will cover more fundamental operations of the brand, including brand research and assessment, brand positioning and strategy, brand architecture, brand planning and management, among other less obvious but equally crucial components of the brand development lifecycle.

GRDS 064 Storytelling in Comics 3 cr.
This class focuses on crafting engaging stories through comics, emphasizing scriptwriting for a visual medium, page layout construction, and character development. Students are encouraged to tackle a variety of subjects, ranging from the fantastical to the intimate, always aiming to make contemporary concerns relatable, and taking full advantage of the narrative tools provided by the medium.

GRDS 066 Alternative Comics: The Study and Making of Graphic Narratives 3 cr.
Through this course students will explore the language of comic art: building a textual and visual narrative, developing the word-image relationship, investigating temporal translations, and expanding the concept of time. They will explore comics as a storytelling art form where emphasis is placed on narrative concepts as well as advanced technical and media skills. Students will explore ways in which images can tell a full story independent of the written word through tone, pace, time, and implied dialogue, thereby expanding the storytelling range.

GRDS 067 Fanzine 3 cr.
Printed matter has provided a way for artists and individuals to express themselves to just a few, or to many. This class will explore the use of alternative media and will build upon the lessons learned in the publication design class. Projects will apply a variety of specialized publications—some traditional and some completely free-form— allowing students to focus more specifically on the content of their printed pieces, while expanding on the techniques available to them when developing the form thereof. Using printing methods both high- and low-end as well as high- and low-tech, students will explore the ways in which serial media and other types of publications provide an outlet for personal expression. Students will be expected to view this class not as a 'how-to' but as a 'have to,' and they should be prepared to engage politically, socially, culturally, poetically, narratively, but most of all personally.

GRDS 068 Contemporary Jewelry Design 3 cr.
This course is an introduction to contemporary jewelry design spanning from the conceptual to the technical. It will begin with a brief history of contemporary jewelry design and will proceed to a semester-long project in conceptualizing and designing a complete jewelry collection, drawing it technically, and producing prototypes of the pieces. The students will also be asked to document their work by art directing and producing a look-book that showcases the collection and clearly communicates the message behind it, as well as any additional promotional item they deem appropriate (e.g. packaging, display...).

Baha and Walid Bassatne Department of Chemical Engineering and Advanced Energy

Chairperson	Azizi, Fouad
Professor	Ahmad, Mohammad
Associate Professors	Al-Hindi, Mahmoud; Azizi, Fouad; Saad, Walid; Zeaiter, Joseph
Assistant Professors	Maalouf, Elsa; Rahal, Said
Senior Lecturer	Manneh, Rima
Instructors	Itani, Adnan; El Berjawi, Mohammad

Undergraduate Programs

The Baha and Walid Bassatne Department of Chemical Engineering and Advanced Energy offers two undergraduate degree programs, bachelor of engineering in chemical engineering (BE CHEN), and bachelor of science in chemical engineering (BS CHEN), a minor in chemical engineering, and a minor in petroleum engineering.

Bachelor of Engineering (BE) Major: Chemical Engineering

Program Mission

The mission of chemical engineering in MSFEA is to provide a stimulating and supportive environment for quality education to prepare graduates for career opportunities in a rapidly changing world by fostering the development of professionalism, leadership qualities and ethical behavior, and to contribute to expanding knowledge in chemical engineering and its related fields.

Program Educational Objectives

Our graduates will be able to:

- Advance successfully in their careers as reflected in continued employment, job satisfaction, leadership responsibilities and professional recognition while always maintaining ties with the university.
- Apply their scientific knowledge and engineering skills in graduate studies and/or industry.
- Be professionals who recognize the broader aspects of engineering practice including economic, environmental, social, political, safety, and sustainability constraints.

Program Requirements

The undergraduate curriculum for the degree of bachelor of engineering (BE) in chemical engineering is a four-year program. It consists of 150 term credit hours of coursework, which are completed while the students are enrolled in the Maroun Semaan Faculty of Engineering and Architecture. The distribution of credits follows the outline below:

- **General Engineering:** FEAA 200, CIVE 210, EECE 210, EECE 231, MECH 220, INDE 302
- **Mathematics:** MATH 201, MATH 202, MATH 218, MATH 251, STAT 230
- **Sciences:** CHEM 204, CHEM 207, CHEM 219, and 6 credits of science electives (From the Approved List)
- **General Education:**

The General Education requirements include:

  - 9 cr. in "Understanding Communication" divided into 3 cr. in Arabic and 6 cr. in English (ENGL 203, ENGL 206)
  - 15 cr. in "Understanding Ourselves" divided as follows:
    - 6 cr. from the Societies & Individuals list, out of which 3 cr. are completed by the required ECON 212 course,
    - 9 cr. from the Cultures & Histories list that should at least include
    - 3 cr. from the theme of Social Inequalities,
    - 3 cr. from the theme of History of Ideas (must be a CHLA 2xx course).
  - 6 cr. in "Understanding our Role in the World" divided as follows:
    - 3 cr. from Community Engaged Learning,
    - 3 cr. from the Human Values list (i.e., INDE 410 or PHIL 210)
- **Chemical Engineering Core Courses:** CHEN 201, CHEN 214, CHEN 310, CHEN 311, CHEN 312, CHEN 314, CHEN 351, CHEN 410, CHEN 411, CHEN 415, CHEN 417, CHEN 431, CHEN 451, CHEN 470, CHEN 480, CHEN 541, CHEN 570, CHEN 571
- **Chemical Engineering Electives:** CHEN 413, CHEN 490, CHEN 499, CHEN 590, CHEN 591, CHEN 592, CHEN 593, CHEN 594, CHEN 595, CHEN 6XX, CHEN 610, CHEN 611, CHEN 612, CHEN 613, CHEN 614, CHEN 615, CHEN 617, CHEN 618, CHEN 619, CHEN 620, CHEN 630, CHEN 632, CHEN 633, CHEN 651, CHEN 670, CHEN 672, CHEN 673, CHEN 674, CHEN 675, CHEN 690, CHEN 691, CHEN 696, CHEN 697, CHEN 798A, VIPP xxx

Note: Students can take up to 2 VIPP courses as technical electives.

- **Approved Experience:** CHEN 500 or COOP (FEAA 500+FEAA 500A)
- **Final Year Project:** CHEN 501 and CHEN 502 (or VIPP 501 and 502 by approval of the department)

Curriculum for BE in Chemical Engineering

First Year (31 credits)

Term I (Fall)		Credits
FEAA 200	Introduction to Engineering and Architecture	3
CIVE 210	Statics	3
EECE 210	Electric Circuits	3
MECH 220	Engineering Graphics	1
MATH 201	Calculus and Analytic Geometry III	3
ENGL 203	Academic English (Understanding Communication)	3
		Total 16

Term II (Spring)		Credits
CHEN 201	Chemical Process Principles	3
CHEN 214	Thermodynamics I	3
STAT 230	Introduction to Probability and Random Variables	3
ENGL 206	English Technical Writing (Understanding Communication)	3
MATH 202	Differential Equations	3
		Total 15

Second Year (42 credits)

Term III (Summer)		Credits
Arabic Elective	Understanding Communication - Arabic	3
CHEM 204	Physical Chemistry for Chemical Engineers	2
CHEM 207	Survey of Organic Chemistry and Petrochemicals	4
		Total 9

Term IV (Fall)		Credits
CHEN 311	Introduction to Fluids Engineering	3
CHEN 314	Chemical Engineering Thermodynamics	3
CHEN 351	Process Instrumentation and Measurements	3
ECON 212	Elementary Macroeconomics Theory	3
MATH 218	Elementary Linear Algebra with Applications	3
EECE 231	Introduction to Programming Using C++ and MATLAB	3
		Total 18

Term V (Spring)		Credits
CHEM 219	Analytical and Instrumental Chemistry for Chemical Engineers	3
CHEN 312	Separation Processes	3
CHEN 415	Mechanical Unit Operations	3
MATH 251	Numerical Computing	3
Societies and Individuals Elective		3
		Total 15

Third Year (40 credits)

Term VI (Summer)	Credits
Cultures and Histories (History of Ideas)	3
Understanding the World (approved list)	3
	Total 6

Term VII (Fall)		Credits
CHEN 310	Transport Phenomena Lab	2
CHEN 411	Heat and Mass Transfer Operations	3
CHEN 417	Reaction Engineering and Reactor Design	3
CHEN 470	Chemical Process Design	3
CHEN 480	Safety and Loss Prevention	3
Human Values Elective		3
		Total 17

Term VIII (Spring)		Credits
CHEN 410	Unit Operations Lab	3
CHEN 431	Materials Engineering & Corrosion	3
CHEN 451	Process Control	3
CHEN 541	Biochemical and Bioprocess Engineering	3
Community Engaged Learning Technical Elective I		3
Cultures and Histories		3
		Total 18

Fourth Year (30 credits)

Term IX (Summer)		Credits
CHEN 500/ FEAA 500	Approved Experience	6
		Total 6

Term X (Fall)		Credits
CHEN 501	Final Year Project I	3
CHEN 570	Process Synthesis and Optimization	3
Cultures and Histories Elective		3
CHEN 571	Chemical Product Design	3
INDE 302	Operations Research I	3
		Total 15

Term XI (Spring)		Credits
CHEN xxx	Technical Elective II	3
CHEN xxx	Technical Elective III	3
CHEN xxx	Technical Elective IV	3
CHEN 502	Final Year Project II	3
Understanding the World Elective (approved list)		3
		Total 15

Total Credit Hours	**150**

Bachelor of Science (BS) Major: Chemical Engineering

Program Mission

The mission of chemical engineering in MSFEA is to provide a stimulating and supportive environment for quality education to prepare graduates for career opportunities in a rapidly changing world by fostering the development of professionalism, leadership qualities and ethical behavior, and to contribute to expanding knowledge in chemical engineering and its related fields.

Program Educational Objectives

Our graduates will be able to:

- Advance successfully in their careers as reflected in continued employment, job satisfaction, leadership responsibilities and professional recognition while always maintaining ties with the university.
- Apply their scientific knowledge and engineering skills in graduate studies and/or industry.
- Be professionals who recognize the broader aspects of engineering practice including economic, environmental, social, political, safety, and sustainability constraints.

Program Requirements

The undergraduate curriculum for the degree of bachelor of science (BS) in chemical engineering is a three-year program. It consists of 117 term credit hours of course work, which are completed while the students are enrolled in the Maroun Semaan Faculty of Engineering and Architecture. The distribution of credits follows the outline below:

- **General Engineering:** FEAA 200, CIVE 210, EECE 210, EECE 231, MECH 220
- **Mathematics:** MATH 201, MATH 202, MATH 218, MATH 251, STAT 230
- **Sciences:** CHEM 204, CHEM 207, CHEM 219
- **General Education:** The General Education requirements include:
  - 9 credits in "Understanding Communication" divided into 3 credits in Arabic and 6 credits in English (ENGL 203, ENGL 206)
  - 12 credits in "Understanding Ourselves" divided as follows:
    - 3 cr. from the Societies & Individuals list, completed by the required ECON 212 course,
    - 3 cr. from the Cultures & Histories list
    - 3 cr. from the theme of Social Inequalities,
    - 3 cr. from the theme of History of Ideas (must be a CHLA 2xx course).
  - 6 credits in "Understanding our Role in the World" divided as follows:
    - 3 cr. from Community Engaged Learning list.
    - 3 cr. from the Human Values list (i.e., INDE 410 or PHIL 210)
- **Chemical Engineering Core Courses:** CHEN 201, CHEN 214, CHEN 310, CHEN 311, CHEN 312, CHEN 314, CHEN 351, CHEN 410, CHEN 411, CHEN 415, CHEN 417, CHEN 451, CHEN 470, CHEN 480, CHEN 541
- **Approved Experience:** CHEN 400 or COOP
- **Final Year Project:** CHEN 401

Curriculum for BS in Chemical Engineering

First Year (31 credits)

Term I (Fall)		Credits
MATH 201	Calculus and Analytic Geometry III	3
CIVE 210	Statics	3
EECE 210	Electric Circuits	3
MECH 220	Engineering Graphics	1
ENGL 203	Academic Writing (Understanding Communication)	3
FEAA 200	Introduction to Engineering and Architecture	3
		Total 16

Term II (Spring)		Credits
CHEN 201	Chemical Process Principles	3
MATH 202	Differential Equations	3
STAT 230	Introduction to Probability and Random Variables	3
CHEN 214	Thermodynamics I	3
ENGL 206	English Technical Writing (Understanding Communication)	3
		Total 15

Second Year (45 credits)

Term III (Summer)		Credits
Arabic Elective	(Understanding Communication-Arabic)	3
CHEM 204	Physical Chemistry for Chemical Engineers	2
CHEM 207	Survey of Organic Chemistry and Petrochemicals	4
		Total 9

Term IV (Fall)		Credits
ECON 212	Elementary Macroeconomics Theory	3
CHEN 311	Introduction to Fluids Engineering	3
CHEN 314	Chemical Engineering Thermodynamics	3
CHEN 351	Process Instrumentation and Measurements	3
EECE 231	Introduction to Programming Using C++ MATLAB	3
MATH 218	Elementary Linear Algebra with Applications	3
		Total 18

Term V (Spring)		Credits
CHEM 219	Analytical and Instrumental Chemistry for Chemical Engineers	3
CHEN 312	Separation Processes	3
CHEN 415	Mechanical Unit Operations	3
MATH 251	Numerical Computing	3
Societies and Individuals Elective		3
Cultures and Histories (History of Ideas)		3
		Total 18

Third Year (34 credits)

Term VI (Summer)		Credits
CHEN 400	Approved Experience	6
		Total 6

Term VII (Fall)		Credits
CHEN 310	Transport Phenomena Lab	2
CHEN 411	Heat and Mass Transfer Operations	3
CHEN 417	Reaction Engineering and Reactor Design	3
CHEN 470	Chemical Process Design	3
CHEN 480	Safety and Loss Prevention	3
Human Values Elective		3
		Total 17

Term VIII (Spring)		Credits
CHEN 401	Final Year Project	3
CHEN 410	Unit Operations Lab	3
CHEN 451	Process Control	3
CHEN 541	Biochemical and Bioprocess Engineering	3
Cultures and Histories Elective		3
Cultures and Histories Elective		3
		Total 18

Total Credit Hours	**117**

Minor in Chemical Engineering

The minor in chemical engineering is open to engineering students in majors other than chemical engineering who have finished their first two academic years in engineering. Only students who have a GPA of 2.3 or more are eligible to apply for the minor.

Program Requirements (21 credits)

Students taking the minor are required to complete 21 credits from the list given below. students have to complete 15 credits of core courses and 6 credits of elective courses.

Refer to the General University Academic Information section of the catalogue for more information regarding minors.

- **Required Core Courses (15 Credits):** CHEN 214, CHEN 311, CHEN 312, CHEN 411, CHEN 417
- **Elective Courses (6 Credits):** CHEN 314, CHEN 415, CHEN 451, CHEN 470, CHEN 480, CHEN 490, CHEN 570, CHEN 571, CHEN 612, CHEN 672, CHEN 673

Minor in Petroleum Engineering

Program Requirements (18 Credits)

The minor in petroleum engineering is open to AUB students from all majors who have finished their first academic year (non-engineering students) or their first two academic years (engineering students) and who have attained a GPA of 2.3.

Refer to the General University Academic Information section of the catalogue for more information regarding minors.

- **Required Core Courses (15 Credits):** PETR 200/CHEN 490
- **Two courses from the following list:** PETR 322/CHEN 595, PETR 421/CHEN 699, PETR 432/CHEN 592, PETR 312/CHEN 593
- **Elective Courses, 9 credits from the following list:** CHEN 480, CHEN 590, CHEN 591, GEOL 225, GEOL 226, MECH 768, PETR 300, PETR 321 / CHEN 594, PETR 514 / CHEN 697, PETR 520 / CHEN 696

Note: Other courses may be approved as minor equivalents at consent of the B. & W. Bassatne Department of Chemical Engineering and Advanced Energy. Students cannot receive more than 6 credits for both PETR/CHEN cross-listed courses as technical electives in the chemical engineering major. When students take 2 out of the 4 core courses from the core courses list, the other 2 courses can be taken as electives for the minor.

Course Descriptions

General Engineering Course

FEAA 200 Introduction to Engineering and Architecture 3 cr.
The course is designed to familiarize first year students with the different disciplines in engineering and architecture, including: architecture, civil, mechanical, electrical, chemical, industrial and technologies used in the fields. The course takes a unique interdisciplinary approach to the field and introduces the related disciplines in the world of engineering and architecture. One key objective is to promote interdisciplinary interaction and innovative thinking. The course is organized into modules covering the different disciplines within the Maroun Semaan Faculty of Engineering and Architecture (MSFEA). The last module of the class showcases interdisciplinary projects demonstrating interactions among the different fields. The lectures explain as applicable to each discipline, through examples, notions of problem solving, design thinking, process of invention and innovation, environmental and civic responsibility, and measures of success in aesthetics and performance. The course project is a key component of the course. It has an interdisciplinary nature, bringing ideas and solutions from all disciplines in engineering and architecture. Annually.

Chemical Engineering Core Courses

CHEN 201 Chemical Process Principles 3 cr.
This course is an introduction to the most important processes employed by the chemical industries, such as plastics, pharmaceutical, chemical, petrochemical, and biochemical. Major emphasis is on formulating and solving material and energy balances for simple and complex systems. Equilibrium concepts for chemical process systems are developed and applied. Computer software is utilized extensively. The course activities include guest speakers and plant trips.

CHEN 214/MECH 310 Thermodynamics I 3 cr.
This course seeks to provide a methodology by which students view objects in the physical universe as "systems" and apply to them the basic laws of conservation of mass, energy, and the entropy balance. The course covers the thermodynamic state and properties of a pure substance, energy and mass conservation, entropy and the second law. Applications involve closed setups and flow devices and simple vapor and liquid cycles. This course is equivalent to MECH 310; hence, students cannot receive credits for both CHEN 214 and MECH 310.

CHEN 310 Transport Phenomena Lab 2 cr.
This lab includes experimentation in thermodynamics and heat, mass and momentum transport on a bench scale, and measurement error estimation and analysis. Prerequisites: CHEN 214 or MECH 310, and CHEN 311.

CHEN 311/MECH 314 Introduction to Fluids Engineering 3 cr.
An introductory course on fluid behavior emphasizing conservation of mass, momentum, energy, and dimensional analysis; study of fluid motion in terms of the velocity field, fluid acceleration, pressure field and viscous effects; applications of Bernoulli's equation, Navier-Stokes and modeling; flow in ducts, potential flows and boundary layer flows. This course is equivalent to MECH 314; hence, students cannot receive credits for both CHEN 311 and MECH 314. Prerequisites: CHEN 214 or MECH 310, and CIVE 210.

CHEN 312 Separation Processes 3 cr.
This course includes the design of industrial separation equipment using both analytical and graphical methods; equilibrium-based design techniques for single and multiple stages in distillation, absorption/stripping and liquid-liquid extraction are employed; and an introduction to gas-solid and solid-liquid systems is presented as well. Mass transfer considerations are included in efficiency calculations and design procedures for packed absorption towers, membrane separations and adsorption. Ion exchange and chromatography are discussed. The role of solution thermodynamics and the methods of estimating or calculating thermodynamic properties are also studied. Degrees of freedom analyses are threaded throughout the course as well as the appropriate use of software. Prerequisite: CHEN 314; Pre/corequisite: MECH 220.

CHEN 314 Chemical Engineering Thermodynamics 3 cr.
This course addresses the principles of classical thermodynamics and focuses on applying them to various unit operations and chemical processes. The course will begin with a review of the first and second laws and their application to closed and open systems. Power and refrigeration cycles are covered. Equations of state (virial, PR, SRK) are detailed. Starting with ideal gas mixtures and ideal solutions, the concepts of bubble and dew points are introduced to enable flash calculations and design of process components. Prerequisites: CHEN 201, CHEN 214 or MECH 310, and MATH 202.

CHEN 351 Process Instrumentation and Measurements 2.1; 3 cr.
A course on general concepts of measurement systems, classification of sensors and sensor types, interfacing concepts, data acquisition, manipulation, transmission, and recording; introduction to LABVIEW, applications, team project on design and implementation of a measuring device. Prerequisites: EECE 210, STAT 230, and MATH 202.

CHEN 400 Approved Experience 6 cr.; 1 b
This is an eight-week professional training course in chemical engineering for students enrolled in the BS program.

CHEN 401 Final Year Project 3 cr.
The Final Year Project provides collaborative design experiences with a problem of industrial or societal significance. Projects can originate with an industrial sponsor, from an engineering project on campus, or from other industrial or academic sources. In all cases, a project is a capstone experience that draws extensively from the students' engineering and scientific background and requires independent judgments and actions. The projects generally involve a number of unit operations, a detailed economic analysis, simulation, use of industrial economic and process software packages, and experimentation and/or prototype construction. Prerequisites: CHEN 470, CHEN 411, and CHEN 480.

CHEN 410 Unit Operations Lab 3 cr.
This laboratory introduces students to basic concepts, experimental techniques, and calculation procedures in unit operations. Experiments include fluid dynamics, heat exchange (pilot-scale units designed to study air-solid, steam-water, water-water heat transfer), cooling towers, gas absorption, solvent extraction, ultrafiltration of hemoglobin solutions in water, chemical reactions (to study stoichiometry and kinetics of batch reactions in the liquid phase), drying of solid materials and distillation. Some reaction kinetics experiments and flow pattern in industrial process equipment are also included. Prerequisites: CHEN 310, CHEN 312, CHEN 411 and CHEN 417.

CHEN 411 Heat and Mass Transfer Operations 3 cr.
The course covers heat conduction, convection and radiation; general differential equations for energy transfer; conductive and convective heat transfer; radiation heat transfer; process heat exchangers; molecular, convective and interface mass transfer; the differential equation for mass transfer; steady state molecular diffusion and film theory; convective mass transfer correlations; and mass transfer equipment. Prerequisites: CHEN 214 or MECH 310, and CHEN 311.

CHEN 415 Mechanical Unit Operations 3 cr.
This course introduces students to the principles and practices involved in contacting, conveying, separating, and storing single and multiphase systems. It includes the flow of incompressible fluids in conduits and past immersed bodies; as well as the transportation, metering and mixing of fluids. Unit operations involved in the contacting and physical separation of phases, such as fluidization; sedimentation and centrifugation; evaporation and membrane separation are also studied. Prerequisite: CHEN 311; pre/corequisite: CHEN 312.

CHEN 417 Reaction Engineering and Reactor Design 3 cr.
This course introduces the subject of chemical reaction engineering and reactor design. Classical reaction kinetics concerning rates, mechanisms, temperature effects and multiple reactions are studied. The concepts of batch, continuous stirred-tank and plug flow reactors are introduced for the ideal case. Non-isothermal reactors and non-ideal flow are considered in the design of chemical reactor systems. Heterogeneous reactors and catalysis are also discussed. Prerequisites: CHEN 314, MATH 251, and CHEM 204.

CHEN 431 Materials Engineering and Corrosion 3 cr.
This course covers: Materials engineering; Properties and performance; Crystalline phases; Imperfection in crystalline solids; Solid solution; Elastic and Plastic deformation; Hardness testing; Fatigue and creep testing; Phase diagrams, engineering alloys and Corrosion. Prerequisite: CHEN 214 or MECH 310.

CHEN 451 Process Control 3 cr.
A course covering the concepts of feedback control systems in the chemical and process industry. The course involves dynamic modeling, design, and analysis of dynamic control systems. The course is synchronized with a laboratory component, CHEN 451L, which provides hands-on experience with various control applications. Prerequisites: CHEN 312 and CHEN 351.

CHEN 470 Chemical Process Design 3 cr.
This course is an integration of material from other chemical engineering courses with applications to the design of plants and processes representative of the chemical and related process industries; basic concepts and methodology for making rational decisions; and the implementation of real engineering projects and comparing alternatives. Prerequisite: CHEN 312; pre/corequisites: CHEN 411 and CHEN 417.

CHEN 480 Safety and Loss Prevention 3 cr.
Topics covered in this class include: history of health and safety; causes and effects of loss; policy development; loss control and health basics; emergency preparedness and standards; hazard identification; safe process design; inspection and investigation processes; measurement, evaluation and audits of OH&S program elements; legislation, HAZOP and HAZAN. Prerequisite: CHEN 312.

CHEN 500 Approved Experience 6 cr.; 1 b
This is an eight-week professional training course in chemical engineering for students enrolled in the BE program. Prerequisite: CHEN 470.

CHEN 501 Final Year Project I 3 cr.
The Final Year Project provides collaborative design experiences with a problem of industrial or societal significance. Projects can originate with an industrial sponsor or from other industrial or academic sources. Prerequisites: CHEN 470, CHEN 411, CHEN 480, and CHEN 500.

CHEN 502 Final Year Project II 3 cr.
This course will be a continuation of CHEN 501 where students will employ their acquired knowledge to investigate the design of overall processes and the detailed design of individual unit operations, perform economic analysis and use industrial economic and process software packages, experimentation and/or prototype construction integrating safety and environmental issues to produce the final optimized design and/or product. Prerequisite: CHEN 501.

CHEN 541 Biochemical and Bioprocess Engineering 3 cr.
This course will be taught in two stages. In the first stage, elementary biochemistry of living organisms, with emphasis on the biochemical pathways that bring about growth and cellular energy production, is presented along with enzyme kinetics and microbial growth models. In the second stage, bioreactors used to bring about the biomass growth either for metabolite production or for degradation are studied. Mass balances and design equations incorporating cellular kinetics and concepts are presented for batch and continuous stirred tank reactors. Vapor phase, fixed-bed reactor designs, such as biofilters, are presented as applications in air pollution control. Prerequisites: CHEN 312 and CHEN 417.

CHEN 570 Process Synthesis and Optimization 3 cr.
An introduction to the design and synthesis of large-scale production and processing of materials such as water, chemicals, petroleum products, food, drugs and wastes. The course introduces principles of optimization: continuous, linear, and nonlinear, and mixed integer linear and nonlinear problems. Applications to heat exchanger network synthesis, energy systems design, distillation, and separation systems selection, optimization, and design under uncertainty. Prerequisites: CHEN 411, CHEN 451, and CHEN 470.

CHEN 571 Chemical Product Design 3 cr.
This course covers the application of the design process to products based on chemical technology. It covers the entire design process from initial identification of product needs, to the generation and selection of product ideas, and culminates in the manufacture of a new product. Prerequisite: CHEN 470.

Chemical Engineering Technical Electives

CHEN 413 Water and Waste Treatment 3 cr.
A course that examines the quality and treatment methods of water and wastewater; testing for physical, chemical and biological parameters. Prerequisite: consent of instructor.

CHEN 499 Undergraduate Research 3 cr.
This course requires participation, under supervision of a faculty member, in a research project. Before registering, the students must create a proposal regarding the nature of the research, the specific goals of the research and the desired final report outcome; this proposal must be submitted to and approved by the supervising faculty member and the department before registering. Prerequisites: Completion of term IX required in the major and a cumulative GPA of 3.3 or above.

CHEN 590 Petroleum Refining 3 cr.
General review of refining processes of crude oil; shortcut methods for practical design calculations; design of atmospheric, vacuum and pressure columns for petroleum fractionation, including auxiliary furnaces and condensers; recent developments in heavy oil processing. Prerequisite: CHEN 312.

CHEN 591 Natural Gas Processing 3 cr.
Natural gas properties including real gas mixtures behavior and the equations of state. Natural gas water systems, natural gas condensate systems, hydrate formation and inhibition. Separation processes. Field treatment of natural gas, absorption, and adsorption processes. Natural gas dehydration, sweetening and sulfur recovery. Design and sizing of the main equipment. Pre/corequisites: CHEM 204, CHEN 311, CHEN 312, and CHEN 314.

CHEN 610 Materials Design and Characterization 3 cr.
This course is designed for chemical engineering students who want to gain knowledge and technical exposure with modern analytical instrumentation used in research and industry. The course will cover the theoretical and scientific aspects involved in analytical applications including: spectroscopy, chromatography, X-ray diffraction etc. It also encompasses laboratory sessions for sample preparation and instrumental operation, analytical method optimization and data interpretation. At the end of the course, students will become familiar with various analytical instruments and methods, and they will be able to decide on the appropriate instrument to carry out specific laboratory analysis for the development and characterization of novel material. Prerequisites: CHEM 219 and CHEN 410.

CHEN 611 Transport Phenomena 3 cr.
This course covers applications of the principles of momentum, heat and mass transfer to steady state and transient problems; molecular concepts; transport in turbulent flow; boundary layer theory; and numerical applications. Prerequisite: CHEN 411 or MECH 412.

CHEN 612 Desalination 3 cr.
This course will survey the commonly used thermal and membrane-based desalination technologies. Fundamental thermodynamic and transport processes which govern desalination will be developed. Environmental, sustainability and economic factors which may influence the performance, affordability and more widespread use of desalination systems for fresh water production and reuse will be highlighted. Renewable energy technologies coupled with desalination processes will be reviewed. A team-based student project to design a reverse osmosis membrane desalination plant (brackish water, seawater or treated sewage effluent) using conventional or alternative energy sources. Prerequisite: CHEN 411 or MECH 412.

CHEN 613 Membrane Separation Processes 3 cr.
The course will provide a general introduction to membrane science and technology: transport mechanisms, membrane preparation and boundary layer effects. The course will also cover various types of membranes used in industry: microfiltration, ultrafiltration, reverse osmosis, electro-dialysis, and pervaporation. Prerequisites: CHEN 312 and CHEN 411.

CHEN 614 Environmental Engineering Separation Processes 3 cr.
This course includes a discussion of the unit operations associated with environmental engineering separation processes of solid-liquid, liquid-liquid and gas-liquid systems; general use, principles of operation and design procedures for specific types of equipment. Prerequisite: consent of instructor.

CHEN 615 Advanced Mass Transfer 3 cr.
This course is a review of molecular and turbulent diffusion and mass transfer coefficients, mass transfer equipment design including absorption and cooling towers, adsorption, and ion exchange. Prerequisite: CHEN 411 or MECH 412.

CHEN 617 Chemical Reactor Analysis and Design 3 cr.
An advanced treatment of chemical reactors. This course covers design for optimum selectivity, stability, and transient behavior of the mixed flow reactor, non-ideal flow, and balance models, fixed and fluidized bed reactors, and multiphase flow reactors. Prerequisite: CHEN 417.

CHEN 618 Colloid and Interface Science 3 cr.
This course aims at introducing the basic concept of colloid and interface science, properties, behavior, and interactions. It explores the application of surface and colloid chemistry principles to technologies involving particulate dispersions, emulsions, foams, aerosols, water-soluble polymers, wetting, flocculation, flotation, separation, and stabilization. The goal is to provide background in surface and colloidal science and give students a solid framework for applying knowledge in colloid and surface science to the solution of practical problems and the development of new technologies. Prerequisite: CHEN 314 or MECH 414.

CHEN 619 Sustainability Science: Human and Environment Interaction 3 cr.
Sustainability is the grand challenge of our time especially with the UN SDG (Sustainable Development Goals) 2030 Agenda. This course addresses the basics of sustainability science and its challenges to promote economic growth and address social needs, while tackling climate change and environmental protection. The goal of the course is to introduce students to the four pillars of sustainability (human, economic, social, environmental) and help them incorporate its principles and models into engineering design practices. Students will be also introduced to current challenges, active debates, and unresolved research questions in sustainability.

CHEN 620 Reaction Engineering and Reactor Design II 3 cr.
The course presents advanced concepts of reaction engineering and reactor design. The course covers fundamentals of heterogeneously catalyzed chemical reactions including kinetics and transport processes. The Reactor design part of the course focuses on the modeling of catalytic reactors. Prerequisite: CHEN 417.

CHEN 630 Sustainable Biorefinery Process 3 cr.
This course provides students with an understanding of the principles, technologies, and design of sustainable bioprocesses and biorefineries. In this course we will focus on techniques and processes needed to efficiently disentangle, separate and convert different biomass-based feedstock into biofuels and high value chemicals. We will also explore the design of a biorefinery taking into account feedstock and the desired product. The design will be evaluated with respect to sustainability and economic criteria. The students will have the opportunity to work in a team on a feasibility/ simulation/ experimental project. Prerequisite: CHEN 417.

CHEN 632 Carbon Capture, Usage and Storage 3 cr.
This course refers to a suite of technologies and processes that enable the mitigation of carbon dioxide (CO2) emissions from large point sources such as power plants, refineries and other industrial facilities, or the removal of existing CO2 from the atmosphere. CCUS plays a crucial role in meeting global climate targets and supporting the transition to a low-carbon energy system. The latest IPCC assessment report warns that the deployment of carbon dioxide removal technologies is 'unavoidable' if net zero emissions are to be achieved and many ambitious net zero scenarios show carbon capture expanding to 6-8 Gt of CO2/year by 2050. This course identifies the need and key steps for CCUS and explains the associated environmental, technical, economical, and regulatory considerations, opportunities, risks, and challenges. Case studies from CCUS projects with varying geographical locations, levels of maturity, and scales will be discussed.

CHEN 633 Carbon Capture, Usage and Storage 3 cr.
This course covers the four phases of environmental life cycle assessment (LCA): i) goal and scope definition, ii) life cycle inventory, iii) life cycle impact assessment, and iv) life cycle interpretation. Primary and secondary data collection is covered with examples for different products and processes, with a focus on energy systems using renewable and non-renewable sources. Inventory analysis is performed using different mathematical approaches. The course also explores the environmental mechanisms behind different indicators such as climate change, acidification, human toxicity, and others. Contribution, sensitivity and Monte-Carlo uncertainty analyses are also performed. Tutorial sessions and a practical LCA case study on energy systems using appropriate software (SimaPro) are covered to gain a hands-on experience with environmental LCA. In addition, real life applications of LCA and its importance towards achieving sustainability in energy systems are included through scientific paper readings and/or guest speakers sessions.

CHEN 651 Advanced Process Control 3 cr.
This course covers the mathematical modeling and computer simulation of process dynamics and control. Prerequisite: CHEN 451.

CHEN 670 Advanced Process Flow-Sheeting 3 cr.
This course highlights the engineering tools used during the lifecycle of chemical plants from the Front-End and Engineering Design (FEED) stage to operation. Flow- sheeting tools will be used for analysis, dynamic modeling for startup-shutdown and control dynamics, and plant-wide optimization for plant performance improvement. Prerequisite: CHEN 570.

CHEN 672 Polymer Science 3 cr.
This course is a broad technical overview of the nature of synthetic macromolecules, including the formation of polymers and their structure, structure-property relationships, polymer characterization and processing, and applications of polymers. The course tends to focus on thermoplastic polymers and elastomers. Prerequisite: CHEN 431 or MECH 340.

CHEN 673/BMEN 604 Engineering of Drug Delivery Systems 3 cr.
This course focuses on recent advances in the development of novel drug delivery systems. The fundamentals of drug delivery are discussed. Various strategies to tune and control the release of active agents for optimized therapeutic outcomes are explored. The course covers polymers and techniques used to produce drug nanoparticles, with specific examples of nanoparticle-based drug delivery systems. Prerequisites: CHEN 314 or MECH 414, and CHEN 411 or MECH 412.

CHEN 674 Process Operations and Diagnosis 3 cr.
This course covers troubleshooting, fault detection and diagnostics in key chemical processes. Statistical tools such as Principle Component Analysis, Fisher Discriminant Analysis, Partial Least Squares and Canonical Variate Analysis methods are studied. Analytical and knowledge-based approaches are also covered. Processes and case studies include: gas-oil separation (GOSP), natural gas processing (AGR, NGL, SRU, fractionation, amine scrubbing), crude oil refining (CDU, VDU, delayed cocking, fluid catalytic cracking) and power plants. Prerequisites: CHEN 451 and CHEN 570.

CHEN 675/BMEN 603 Tissue Engineering 3 cr.
Tissue engineering is an interdisciplinary field that uses cells, biomaterials, biochemical (e.g., growth factors) and physical (e.g., mechanical stimulation) signals, as well as their combination to generate tissue-like structures. The goal of tissue engineering is to provide biological substitutes that can maintain, restore, or improve the function of damaged tissues in the body.

CHEN 691 Reservoir Characterization: Carbonate Rocks 3 cr.
This course is an introduction to the common, modern approaches to the characterization of carbonate reservoirs. State-of-the-art petrographic tools will be introduced. The major depositional environments of carbonate rocks and carbonate platform types as well as the principal controls on carbonate sedimentation will be highlighted. Diagenesis (modification of reservoir properties through time) will be discussed through related processes and products, including the process of dolomitization. In-depth coverage of secondary porosity evolution in carbonate reservoirs will be provided (including elements of appropriate rocktyping). A team-based project to solve a case study in reservoir characterization as well as a field trip to provide a practical view of carbonate reservoir rocks will be included. Prerequisite: CHEN 490.

CHEN 798A Waste Minimization in the Process Industry 3 cr.
The objective of this course is to become familiar with waste minimization principles, quality management systems and pollution control and legislation. The course contents include: introduction and background to waste minimization, benefits of waste minimization, implementation of a waste minimization program, practical techniques to minimize waste, methodology of waste minimization, typical causes and sources of waste and examples of practical waste minimization techniques.

PETR 200/CHEN 490 Introduction to Petroleum Engineering 3 cr.
This course gives an overview on the hydrocarbon reservoirs lifecycle starting from the exploration stage till the production and reservoir management stage. It will introduce students to the fundamental concepts of petroleum engineering including petroleum geosciences, drilling engineering, formation evaluation, reservoir engineering, production engineering and hydrocarbon reservoirs economic evaluation. As an outcome of this course, students will gain a foundational understanding of the upstream petroleum industry and get accustomed to its integrated nature, involved terminology and multiple disciplines. Students cannot receive credits for both CHEN 490 and PETR 200.

PETR 300 Petroleum Exploration 3 cr.
This course focuses on the major foundational concepts about how the Earth works as an integrated system and, particularly, how petroleum systems operate within an important part of the crust, sedimentary basins. Throughout the course, relevant aspects of geoscience are discussed, and impacts of these concepts on various exploration and reservoir development activities are emphasized. Importance of real rock samples, the processes of deposition, subsurface imaging, and evaluation of petrophysical properties are discussed. Effect of heterogeneities on fluid distribution and flow, and relations between engineering concepts and geological structures will be introduced. Prerequisite: PETR 200 or CHEN 490.

PETR 312/CHEN 593 Reservoir Petrophysics 3 cr.
This course provides students with a systematic understanding of physical properties of petroleum reservoir rocks: lithology, porosity, relative and effective permeability, fluid saturations, capillary characteristics, compressibility, rock stress and fluid-rock interaction. The different sources of formation evaluation data acquired to characterize oil and gas reservoirs will be introduced together with the process through which data is interpreted to estimate the reservoir properties.

PETR 321/CHEN 594 Reservoire Fluids 3 cr.
This course discusses the different types of reservoir fluids and their related fundamental thermodynamics properties. It will equip students with practical understanding of oil and gas reservoir fluids properties and related behavior as applied to reservoir and production engineering studies. The different types of experimental data acquired and used to build PVT models for reservoir and production system simulation. Prerequisite: CHEN 214 or MECH 310.

PETR 322/CHEN 595 Drilling Engineering I 3 cr.
This course acquaints students with the terminology, concepts, equipment, techniques, and processes used in the oil and natural gas well drilling operations.

PETR 421/CHEN 690 Oil and Gas Reservoir Engineering 3 cr.
This course covers both fundamental and applied reservoir engineering concepts. It aims at understanding the rock and fluid properties and how these properties interact to affect production from a hydrocarbon reservoir. From a practical perspective, the course focuses on classical reservoir engineering, reservoir drive mechanisms, well testing and well test analysis as well as the use of reservoir simulation to assist the reservoir engineer at different stages of a hydrocarbon reservoir lifecycle.

PETR 432/CHEN 592 Production Engineering 3 cr.
The course covers the principles and methods used to produce oil and natural gas from the reservoir to surface facilities. It provides techniques for predicting the flow within the system including reservoir and wellbore hydraulics. Performance analysis methods and equipment used are discussed along with methods to enhance well performance.

PETR 514/CHEN 697 Reservoir Economics and Risk Management 3 cr.
Review of financial concepts and economic evaluation techniques and related financial concepts used in the oil and gas upstream business to assist decision-making on either the investment of capital or the divestment of assets. The course will focus on the conversion of hydrocarbon volumes to 'monetary value' and the requirement for consistent means of determining both the absolute and relative attractiveness of investment opportunities, from new field developments to portfolio management decisions. Prerequisite: PETR 421 or CHEN 690.

PETR 520/CHEN 696 Reservoir Modeling 3 cr.
This course introduces students to the theory and practice of hydrocarbon reservoir simulation. It details the mathematics of the governing equations and numerical techniques that form reservoir simulation models. The course will cover data preparation, simulation grid preparation, reservoir model calibration, forecasting of future performance, and interpretation of simulation results. Students will learn about the elements of a reservoir simulation model, the types of reservoir simulators and the role of simulation in field development planning, reservoir management and production optimization. Prerequisites: PETR 421 or CHEN 690.

Department of Civil and Environmental Engineering

Chairperson	Najjar, Shadi
Professors	Abou Zeid, Maya; Basha, Habib; Hamad, Bilal; Harajli, Muhamad; Mabsout, Mounir; Najjar, Shadi; Sadek, Salah; Srour, Issam
Associate Professors	Dabaghi, Mayssa; Hantouche, Elie; Khoury, Hiam; Salam, Darine
Assistant Professors	Gharzouzi, Paul; Yehya, Alissar
Professor Emeritus	Ayoub, George
Adjunct Professors	El Fadel, Mutasem; Kaysi, Isam
Visiting Professor	Abdul Malak, Mohamed-Asem
Senior Lecturer	Basha, Hisham
Part-time Senior Lecturer	Fawwaz, Youssef
Part-time Lecturers	Awwad, Elie; Demachkieh, Farah; El Chiti, Imad; El Meski, Fatima; Elsouri, Amer; Hatem-Mousallem, Manal; Malaeb, Lilian; Nader, Halim; Yousef Abdul Massih, Dalia
Part-time Instructors	El Chartouni, Joseph; El Khatib, Helmi; Hage Ali, Nadine
Laboratories	Al Hassanieh, Dima; El Zein, Leticia; Zayyat, Ramez

Undergraduate Programs

The Department of Civil and Environmental Engineering (CEE) offers the degrees of bachelor of engineering (BE) with the major of civil engineering (CE) and bachelor of science (BS) with the major of construction engineering (ConsE).

Program Mission

The mission of the CE undergraduate programs is to provide a stimulating and supportive environment for high-standard education and research; to prepare graduates for life-long learning and productive careers, while instilling in them an appreciation of leadership qualities, professionalism, and ethics; to provide professional services of the highest quality to the community; and to contribute, through teaching and research, to expanding the knowledge and technology base in civil and environmental engineering.

Bachelor of Engineering (BE) Major: Civil Engineering

Program Educational Objectives

The objectives of the CE program are to see our students move on to become:

- Engineers who hold central positions, create sustainable and ethical solutions, and advance the knowledge in various sub-disciplines of civil engineering in local, regional, and international practice.
- Graduates who are admitted to, and successfully complete, advanced degrees in leading universities around the world.
- Leaders and innovators in their profession and in the service of their community.

Program Requirements

- **General Engineering:** FEAA 200, EECE 231, INDE 301
- **Mathematics:** MATH 201, MATH 202, MATH 218, MATH 251, STAT 230
- **Sciences:** PHYS 210, PHYS 210L, CHEM 202, CHEM 203, and one biology elective (BIOL 201 level or above or CIVE 252 or FEAA 300)
- **General Education:**
  Understanding Communication (9 credits): 3 credits Arabic course, ENGL 203, and ENGL 206
  Understanding Ourselves (15 credits): 6 credits from "Societies & Individuals" and 9 credits from "Cultures & Histories". Out of these 15 credits, 3 credits must fulfill the thematic requirement: Social inequalities, and 3 credits must fulfill the thematic requirement: History of Ideas (Must be a CHLA 2xx course).
  Understanding Our Role in the World (6 credits): 3 credits course on Community Engaged Learning (to be selected from the list of designated courses on the General Education Program Website and to be counted as either (1) a technical electives outside major or (2) a "Societies & Individuals" or "Cultures & Histories" if the course has a double designation on the General Education Program Website), and 3 credits course from Human Values (INDE 410).
- **Civil Engineering Core Courses:** CIVE 201, CIVE 210, CIVE 301, CIVE 310, CIVE 311, CIVE 330, CIVE 340, CIVE 370, CIVE 411, CIVE 413, CIVE 421, CIVE 430, CIVE 431, CIVE 440, CIVE 460, CIVE 461, CIVE 550
- **Elective Courses:**
  - **Construction Electives:** CIVE 422, CIVE 423
  - **Environmental Electives:** CIVE 451
  - **Geology Electives:** CIVE 330, GEOL 201, GEOL 211
  - **Hydrology Electives:** CIVE 541, CIVE 542
  - **Structural Elective:** CIVE 412, CIVE 414
- **Approved Experience:** CIVE 400 or COOP (FEAA 500 and FEAA 500A)
- **Final Year Project:** CIVE 401 and CIVE 402 or VIPP 501 and VIPP 502

Curriculum for the BE in Civil Engineering

Term I (Fall)		Credits
FEAA 200	Introduction to Engineering and Architecture	3
CIVE 201	Engineering Drawings and Tools	3
MATH 201	Calculus and Analytical Geometry III	3
CHEM 202	Introduction to Environmental Chemistry	3
CHEM 203	Introductory Chemical Techniques	2
ENGL 203	Academic English (Understanding Communication)	3
		Total 17

Term II (Spring)		Credits
CIVE 210	Statics	3
MATH 202	Differential Equations	3
PHYS 210	Introductory Physics II	3
PHYS 210L	Introductory Physics Laboratory II	1
ARAB 2xx	Arabic Elective (Understanding Communication)	3
	Cultures and Histories - History of Ideas Elective	3
		Total 16

Term III (Summer)		Credits
CIVE 301	Surveying	3
CIVE 330	Engineering Geology (or Geology Elective)	3
	Societies and Individuals Elective	3
		Total 9

Term IV (Fall)		**Credits**
CIVE 310	Mechanics of Materials	3
CIVE 370	Construction Materials and Technologies	3
EECE 231	Introduction to Programming with C++ and MATLAB	3
ENGL 206	Technical English (Understanding Communication)	3
MATH 218	Elementary Linear Algebra with Applications	3
		Total 15

Term V (Spring)		**Credits**
CIVE 311	Theory of Structures	3
CIVE 340	Fluid Mechanics and Laboratory	3
MATH 251	Numerical Computing	3
BIOL 2xx, or FEAA 300	Biology Elective	3
INDE 410	Engineering Ethics (Human Values)	3
		Total 15

Term VI (Summer)		**Credits**
STAT 230	Introduction to Probability and Random Variables	3
INDE 301	Engineering Economy	3
	Societies and Individuals Elective	3
		Total 9

Term VII (Fall)		Credits
CIVE 413	Concrete Design I	3
CIVE 430	Soil Mechanics and Laboratory	3
CIVE 440	Hydraulics and Laboratory	3
CIVE 550 or 551	Water Treatment and Laboratory or Wastewater Treatment and Laboratory	3
CIVE 460	Transportation Engineering and Laboratory	3
		Total 15

Term VIII (Spring)		Credits
CIVE 421	Construction Management	3
CIVE 411	Indeterminate Structural Analysis	3
CIVE 54x	Hydrology Elective	3
CIVE x5x	Environmental Elective	3
CIVE 461	Highway Engineering	3
		Total 15

Term IX (Summer)		Credits
CIVE 400 or COOP (FEAA 500 and FEAA 500A)	Approved Experience	6
		Total 6

Term X (Fall)		Credits
CIVE 401 or VIPP 501	Final Year Project I	3
CIVE 41x	Structures Elective	3
CIVE 431	Foundation Engineering	3
CIVE 5xx/6xx	CEE Technical Elective	3
CIVE 5xx/6xx	CEE Technical Elective	3
	Culture and Histories	3
		Total 18

Term XI (Spring)		Credits
CIVE 402 or VIPP 502	Final Year Project II	3
CIVE 42x	Construction Elective	3
CIVE 5xx/6xx	CEE Technical Elective	3
CEE/MSFEA/ AUB	CEE or Approved MSFEA/AUB Technical Elective	3
	Culture and Histories	3
		Total 15

Total Credit Hours	150

Bachelor of Science (BS) Major: Construction Engineering

Program Educational Objectives

The objectives of the construction engineering program are to see our graduates move on to become:

- Engineers who hold central positions in local, regional, and international construction engineering practice.
- Engineers who are involved in landmark projects and who contribute to the advancement of the local and regional construction industry.
- Leaders in their profession and in the service of their community.

Program Requirements

- **General Engineering:** FEAA 200, EECE 231, INDE 301
- **Mathematics:** MATH 201, MATH 202, MATH 218, MATH 251, STAT 230
- **Sciences:** PHYS 210, PHYS 210L, CHEM 202, CHEM 203, and one biology elective (BIOL 201 level or above or CIVE 252 or FEAA 300)
- **General Education:**
  Understanding Communication (9 credits): 3 credits Arabic course, ENGL 203, and ENGL 206
  Understanding Ourselves (15 credits): 6 credits from "Societies & Individuals", out of which 3 credits are satisfied by the required ECON 212 course, and 9 credits from "Cultures & Histories". Out of these 15 credits, 3 credits must fulfill the thematic requirement: Social inequalities, and 3 credits must fulfill the thematic requirement: History of Ideas (Must be a CHLA 2xx course).
  Understanding Our Role in the World (6 credits): 3 credits course from Community Engaged Learning, satisfied by the FYP courses (CIVE 401 & 402), and 3 credits course from Human Values (INDE 410)
- **Civil Engineering Core Courses:** CIVE 201, CIVE 210, CIVE 301, CIVE 310, CIVE 311, CIVE 330, CIVE 340, CIVE 370, CIVE 413, CIVE 421, CIVE 422, CIVE 423, CIVE 430, CIVE 440, CIVE 461, CIVE 522.
- **Approved Experience:** CIVE 400 or COOP (FEAA 500 and FEAA 500A)

Curriculum for the BS in Construction Engineering

Term I (Fall)		**Credits**
FEAA 200	Introduction to Engineering and Architecture	3
CIVE 201	Engineering Drawings and Tools	3
MATH 201	Calculus and Analytical Geometry III	3
CHEM 202	Introduction to Environmental Chemistry	3
CHEM 203	Introductory Chemical Techniques	2
ARAB 2xx	Arabic Elective (Understanding Communication)	3
		Total 17

Term II (Spring)		Credits
CIVE 210	Statics	3
MATH 202	Differential Equations	3
PHYS 210	Introductory Physics II	3
PHYS 210L	Introductory Physics Laboratory II	1
ENGL 203	Academic English (Understanding Communication)	3
	Cultures and Histories - History of Ideas Elective	3
		Total 16

Term III (Summer)		Credits
CIVE 301	Surveying	3
STAT 230	Introduction to Probability and Random Variables	3
	Societies and Individuals Elective	3
		Total 9

Term IV (Fall)		Credits
CIVE 310	Mechanics of Materials	3
CIVE 370	Construction Materials and Technologies	3
EECE 231	Introduction to Programming with C++ and MATLAB	3
ENGL 206	Technical English (Understanding Communication)	3
MATH 2xx	Mathematics Elective	3
		Total 15

Term V (Spring)		Credits
CIVE 311	Theory of Structures	3
CIVE 340	Fluid Mechanics and Laboratory	3
MATH 251	Numerical Computing	3
INDE 410	Engineering Ethics (Human Values)	3
BIOL 2xx or FEAA 300	Biology Elective	3
		Total 15

Term VI (Summer)		Credits
CIVE 330	Engineering Geology (or Geology Elective)	3
INDE 301	Engineering Economy	3
ECON 212	Elementary Macroeconomic Theory	3
		Total 9

Term VII (Fall)		Credits
CIVE 413	Concrete Design	3
CIVE 421	Construction Management	3
CIVE 430	Soil Mechanics and Laboratory	3
CIVE 440	Hydraulics and Laboratory	3
	Cultures and Histories Elective	3
		Total 15

Term VIII (Spring)		Credits
CIVE 422	Construction Methods and Safety	3
CIVE 423	Construction Planning and Scheduling	3
CIVE 522	Building Construction and Estimating	3
CIVE 461	Highway Engineering	3
	Cultures and Histories Elective	3
		Total 15

Term IX (Summer)		Credits
CIVE 400 or COOP (FEAA 500 and FEAA 500A)	Approved Experience	6
		Total 6

Total Credit Hours	117

Course Descriptions

Common Courses

FEAA 200 Introduction to Engineering and Architecture 3 cr.
The course is designed to familiarize first year students with the different disciplines in engineering and architecture, including: architecture, civil, mechanical, electrical, chemical, industrial and technologies used in the fields. The course takes a unique interdisciplinary approach to the field and introduces the related disciplines in the world of engineering and architecture. One key objective is to promote interdisciplinary interaction and innovative thinking. The course is organized into modules covering the different disciplines within the Maroun Semaan Faculty of Engineering and Architecture (MSFEA). The last module of the class showcases interdisciplinary projects demonstrating interactions among the different fields. The lectures explain as applicable to each discipline, through examples, notions of problem solving, design thinking, process of invention and innovation, environmental and civic responsibility, and measures of success in aesthetics and performance. The course project is a key component of the course. It is interdisciplinary in nature bringing ideas and solutions from all disciplines in engineering and architecture. Annually.

CIVE 201 Engineering Drawings and Tools 3 cr.
An introductory course that aims to introduce students to the basics of engineering drawing and mapping through the use of Autodesk's Revit and ESRI's ArcGIS software packages.

CIVE 301 Surveying 3 cr.
A course on the theory of measurements and errors; linear measurements; surveying instruments; leveling; angles, bearings and azimuths; stadia measurements; traversing– field aspects; traverse computations and adjustment; topographic surveying; triangulation; digital mapping; geographic information system (GIS); remote sensing; Prerequisites: CIVE 201 and CIVE 210.

CIVE 400 Approved Experience 6 cr.; 1 b.
Students are placed for eight full weeks at a recognized consulting and/or contracting firm in Lebanon or abroad in a capacity that ensures they apply their knowledge and acquire professional experience in the field of civil engineering. Prerequisite: Third and fourth year.

CIVE 401 Final Year Project I 3 cr.
A chosen design topic and preparation of a detailed execution program for CIVE 402 through comprehensive research with the guidance and approval of the faculty. Prerequisite: CIVE 400, Fourth year.

CIVE 402 Final Year Project II 3 cr.
A supervised project in groups of normally three students aimed at providing practical design experience in a civil and environmental engineering application. Prerequisite: CIVE 401.

CIVE 403 Special Topics in Civil and Environmental Engineering 3 cr.
Special Topics in Civil and Environmental Engineering.

Structural Sequence Courses

CIVE 210 Statics 3 cr.
A course outlining vector mechanics of forces and moments; free-body diagrams; equilibrium of particles and rigid bodies in two and three dimensions; concentrated and distributed loading; supports and external reactions; internal axial forces, shear forces, and bending moments in beams; internal axial forces in plane trusses; centroid and center of gravity. Moment of Inertia. Pre/corequisite: MATH 201.

CIVE 310 Mechanics of Materials 3 cr.
A course on stresses, strains and stress-strain relationships; temperature; axial bars in tension and compression; torsion of circular bars; bending and shear stresses in beams; combined stresses; stress transformation and Mohr's circle; and computer spreadsheet. Prerequisite: CIVE 210.

CIVE 311 Theory of Structures 3 cr.
A course covering review of principles of statics; analysis of statically determinate plane frames; deflection of statically determinate beams; introduction to indeterminate structural analysis; influence lines; computer applications; a project on building modeling and assessment. Prerequisites: CIVE 310, MATH 202, PHYS 210, and Corequisite: PHYS 210L.

CIVE 411 Indeterminate Structural Analysis 3 cr.
A course covering review of basic concepts of structural analysis; equilibrium, stability, indeterminacy, and degrees of freedom; indeterminate analysis of trusses; indeterminate analysis of beams and frames; influence lines for statically indeterminate structures. Prerequisite: CIVE 311.

CIVE 412 Steel Design 3 cr.
A course that examines loads on structures; philosophies of design: LRFD versus ASD; behavior, analysis and design (according to AISC) of tension members, bolted connections, welded connections, welding fundamentals and groove welds, compression members and beams. Prerequisite: CIVE 311.

CIVE 413 Concrete Design I 3 cr.
A course that covers the mechanical properties of concrete materials; ultimate strength theory of flexure and shear; flexural and shear design of beams; service load behavior; bond properties of reinforcing bars; design of solid and ribbed one-way slabs. Prerequisite: CIVE 311.

CIVE 414 Concrete Design II 3 cr.
A course that covers continuous beams, short columns, lender columns and biaxially bent columns; wall footings, concentrically and eccentrically loaded single column footings and combined footings; staircases; bearing walls; cantilever retaining. Prerequisite: CIVE 413.

CIVE 610 Numerical Methods in Structural Analysis 3 cr.
A course that introduces the matrix approach for the modeling and analysis of structural systems; computer modeling/analysis using specialized software (SAP2000); computer implementation and code development; nonlinear analysis of frames. Prerequisites: CIVE 411 and EECE 231.

CIVE 611 Bridges 3 cr.
A course that discusses types of bridges; influence lines; loads and their distribution on bridges; serviceability of bridges; methods of design of bridge deck, superstructure, and substructure. Prerequisite: CIVE 311.

CIVE 612 Advanced Steel Design 3 cr.
A course that investigates stability, column strength, beam-columns, composite steel concrete construction, plate buckling, plate girders, torsion, and combined torsion and bending; eccentrically loaded connections, influence of connection stiffness on moment demand and general moment connection. Prerequisite: CIVE 412.

CIVE 613 Prestressed Concrete 3 cr.
A course on material characteristics; prestress losses; working strength design procedures; composite construction; ultimate flexural strength and behavior; shear design; continuous pre-stressed concrete members. Prerequisite: CIVE 413.

CIVE 614 Special Topics in Concrete 3 cr.
A course that reviews reinforced concrete (R/C) design; torsion in R/C members; wind load on structures; earthquake load and seismic design of structures; design of shear walls; design of corbels, brackets, and deep girders; circular and rectangular water tanks; and spherical, conoidal, and ellipsoidal domes. Prerequisite: CIVE 414.

CIVE 615 Strengthening and Rehabilitation of Concrete Structural Systems 3 cr.
A course on assessment of materials and structural deficiency using field test or analytical methods; repair and strengthening materials; strengthening and repair techniques; strengthening of structural members in flexure, shear, and axial load; and upgrading of gravity load-designed buildings for earthquake load resistance. Prerequisites: CIVE 311 and CIVE 413.

CIVE 616 Earthquake Engineering 3 cr.
A course that examines the nature of earthquake ground motion; seismic hazard evaluation in engineering practice; response analysis of structures and effect of soil conditions on structural response and behavior under earthquake ground motion; design of structures under earthquake loading. Prerequisite: CIVE 411.

CIVE 710 The Finite Element Method 3 cr.
A course that introduces basic elements; interpolation and shape functions; variational formulation methods; Galerkin and weighted residual methods; iso-parametric elements; numerical integration; error estimation and modeling issues; finite elements in structural dynamics. Prerequisite: CIVE 610.

CIVE 711 Advanced Mechanics of Solids 3 cr.
A course that covers theories of stress and strain; generalized Hooke's law; modes of failure, failure criteria; energy principles and applications; torsion; beams on elastic foundations; introduction to the theory of plates; thin-wall and thick-wall cylinder. Prerequisite: CIVE 411.

CIVE 712 Structural Dynamics 3 cr.
A course on analysis of vibration of single degree, multi-degree, and infinite degree of freedom systems; free and forced vibration response; analysis of dynamic response by approximate methods; introduction to earthquake engineering. Prerequisite: CIVE 411.

CIVE 713 Behavior of Reinforced Concrete Members 3 cr.
A course on building codes; limit state design; mechanical characteristics of concrete and steel reinforcement; creep and shrinkage; flexure: moment-curvature and force deformation relationships; columns: axial force-moment-curvature relationships; shear: mechanisms of shear resistance; and truss analogy; bond and anchorage of reinforcement. Prerequisite: CIVE 414.

CIVE 714 Seismic Design of Reinforced Concrete Structures 3 cr.
A course on the seismic behavior and design of reinforced concrete structures; introduction to concepts of seismic design and performance-based earthquake engineering; mechanical behavior of steel reinforcement, concrete and confined concrete under monotonic and cyclic loading; seismic behavior, analysis and design of reinforced concrete elements and systems; design of special structural/shear wall systems; design of special moment resisting frames. Prerequisite: CIVE 411 and CIVE 414.

Construction Engineering and Management Sequence Courses

CIVE 421 Construction Management 3 cr.
A course that seeks to impart in students a sound understanding of the construction company and project organization, pre-construction activities, estimating and bidding, staffing for construction, macro-level planning and scheduling, and quality control. Prerequisite: CIVE 370 and Corequisite: CIVE 413

CIVE 422 Construction Methods and Safety Management 3 cr.
A course that exposes students to the tools needed for estimating, planning, and directing operations in building construction and heavy civil projects. The course addresses equipment, methods, productivity, ownership and operating costs, and safety management. Prerequisites: CIVE 370 and CIVE 421.

CIVE 423 Construction Planning and Scheduling 3 cr.
A course on CPM, precedence network, schedule control, codes, collaborative planning, resource management, priority rules and leveling, earned value, schedule reduction, PERT, line of balance scheduling, the Last Planner System, Primavera P6, Microsoft Project, and VICO control. Prerequisite: CIVE 421.

CIVE 520 Construction Contract Administration 3 cr.
The course deals with contract documents, with focus on specifications structure, procedural requirements, specifying methods and the basis for unit rate estimation. It covers the engineer's roles along with contract administration issues. Prerequisite: CIVE 421.

CIVE 522 Building Construction and Estimating 3 cr.
A course that exposes students to different building systems (concrete, masonry, steel, waterproofing, mechanical, electrical, etc.) and how to price them by choosing the best materials and methods. The use of drawings and specifications will also be covered. Prerequisites: CIVE 400 (site work) and CIVE 421.

CIVE 524 Logistics, Technologies, and Productivity Concepts 3 cr.
The course covers construction site layout, team organization, information flow and complexities. The focus is on productivity improvement approaches, data gathering for analysis of construction operations, and issues related to process innovation and automation.

CIVE 525 Design of Temporary Support Structures 3 cr.
A course that covers design and construction of temporary support structures used in the construction industry, including concrete formwork, scaffolding, caissons, cofferdams, and dewatering systems.

CIVE 620 Pre-Project Planning and Feasibility Analysis 3 cr.
A course covering the studies needed to make a go-ahead decision, including assimilation of client needs, surveys of project area and infrastructure conditions, scope validation, team development, project planning and cost estimation, and financial feasibility. Prerequisite: CIVE 421 or equivalent.

CIVE 621 Design Management for Large Projects 3 cr.
The course covers the characteristics of the design phase, design team selection, and design services agreement formation and negotiation. It focuses on value engineering and management, constructability considerations and project cost management during design.

CIVE 622 Advanced Topics in Construction Management (Blended) 3 cr.
A course focusing on the construction phase of a project's lifecycle. Topics include: site organization structure, construction safety, labor management, materials procurement systems, site information management, scheduling, project controls and sustainability. Prerequisite: CIVE 421 or equivalent.

CIVE 623 Construction Project Management 3 cr.
The course offers an extended overview of project management. It covers integrated planning-estimating-scheduling concept; project time, budget, and quality baselines; materials management and subcontracting issues; and integrated project cost-time control. Prerequisite: CIVE 421 or equivalent.

CIVE 624 Building Information Modeling 3 cr.
A course that covers Building Information Model (BIM) use and benefits in design and construction. It addresses collaborative design, clash detection, level of development (LOD), BIM contracts, automated code checking, simulation, BIM and lean applications, and integrated project delivery.

CIVE 625 IT Applications in Construction 3 cr.
A course that covers computing tools impacting the construction industry such as mobile sensing, instrumentation, and information systems to support field engineering tasks and computerized systems applications to perform specific functions, such as estimating, scheduling, and cost control.

CIVE 626 Lean Construction Methods and Applications (Blended) 3 cr.
A course on lean theory, production control, value stream mapping, process improvement, project definition, lean design, integrated project delivery, advanced lean scheduling, risk assessment, budget under uncertainty, and project monitoring. Prerequisite: CIVE 421.

CIVE 627 Construction Systems Analysis and Simulation 3 cr.
A course that covers planning and simulation modeling of construction operations, design of efficient processes, construction productivity and resource use considerations, production system design, construction supply chain management, and analysis of construction systems.

CIVE 628 Sustainable Building Design and Construction 3 cr.
A course that covers principles of sustainable design and construction, including lifecycle assessment, economic and environmental impacts, carbon footprint, and green building rating systems such as LEED and BREEAM.

CIVE 629 Construction Business Management 3 cr.
A course that covers the principles of business management of construction companies and projects including financial management, accounting, costs and profits management, cash flows management, evaluation of sources of construction funding and financial decisions analysis. Prerequisite: CIVE 421.

CIVE 720 Construction Technology for Tall Buildings 3 cr.
A course on the latest construction practices and processes for tall buildings from foundation to roof. It covers advanced methods, materials, equipment, and systems used for the construction of tall buildings, as well as principles of sustainable construction. Prerequisite: CIVE 422.

CIVE 721 Advanced Scheduling Analysis 3 cr.
A course that provides advanced techniques in construction scheduling. It examines monitoring, updating, and controlling the project schedule. It introduces the methods used in performing forensic scheduling analysis. Prerequisite: CIVE 423.

CIVE 722 Project Deliverance and Contracts 3 cr.
The course offers an overview of project delivery organizations, risk considerations and contracts. It covers the elements of construction contracts, with emphasis on contract formation, substantial completion, and close-out processes. Prerequisite: CIVE 421.

CIVE 723 Dispute Resolution on Projects 3 cr.
The course covers construction contract conditions governing claims and disputes. Focus is on claim evolvement and administration (including issues dealing with time barring, notification, and substantiation), ADR methods and amicable settlement. Prerequisite: CIVE 421.

CIVE 724 Mediation of Engineering Disputes 3 cr.
This course focuses on the use of mediation for resolving construction related disputes. Topics include: dispute avoidance in construction, alternative dispute resolution techniques, and the mechanics of mediation and negotiation. Prerequisite: CIVE 520.

CIVE 725 Construction Decisions Under Uncertainty 3 cr.
A course that covers construction project and organization decisions for the uncertain future. The course addresses decision theory, competitive bid analysis, probabilistic modeling and simulation, and multiple regression analysis in managing construction. Prerequisite: STAT 230.

Geotechnical Sequence Courses

CIVE 330 Engineering Geology 3 cr.
A course that discusses the composition and properties of rocks; geologic processes; geologic hazards; geologic structure and engineering consequences; terrain analysis and geologic mapping; interpretation and use of geologic maps; application of geology to engineering practice.

CIVE 430 Soil Mechanics and Laboratory 3 cr.
A course on soil classification and index properties; soil structure and moisture; compaction; seepage; effective stress concept; compressibility and consolidation; stress and settlement analysis; shear strength; and laboratory experiments. Prerequisites: CIVE 310 and CIVE 330.

CIVE 431 Foundation Engineering 3 cr.
A course that covers site investigations; evaluation of data from field and laboratory tests; estimation of stresses in soil masses; applications of principles of soil mechanics to determination of bearing capacity and settlement of spread footings, mats, single piles and pile groups. Prerequisite: CIVE 430.

CIVE 631 Applied Foundation Engineering 3 cr.
A course on braced excavations, retaining structures, deep foundations, slope stability, and computer applications. Prerequisite: CIVE 431.

CIVE 632 Soil Behavior 3 cr.
A course on soil mineralogy, soil formation and composition; influence of geological factors on properties; colloidal phenomena in soils; soil structure; analysis of conduction phenomena (hydraulic, diffusive, thermal and electrical); compressibility, strength, and deformation properties. Prerequisite: CIVE 430.

CIVE 633 Soil and Site Improvement 3 cr.
A course that covers compaction, admixture stabilization, foundation soil treatment, reinforced soil and composite materials, and material sites reclamation. Prerequisite: CIVE 430.

CIVE 634 Shear Strength of Soils 3 cr.
A course that covers stresses within a soil mass, tests to measure stress strain properties, stress-strain relationships, shear strength, drained and undrained conditions, constitutive models, and failure criteria applications. Prerequisite: CIVE 430.

CIVE 635 Earth Dams 3 cr.
A course that examines hydraulic dams, rolled earth dams, homogenous dams, thin core dams, filters, causes of dam failures, see page control, and seismic stability of dams. Prerequisite: CIVE 430.

CIVE 636 Geotechnical Earthquake Engineering 3 cr.
A course on causative mechanisms and characteristics of earthquakes; evaluation dynamic soil properties local site response; seismic soil-structure interaction; evaluation and mitigation of soil liquefaction; seismic code provisions and additional current topics. Prerequisite: CIVE 430.

Water Resources Sequence Courses

CIVE 340 Fluid Mechanics and Laboratory 3 cr.
A course that deals with fluid properties, fluid static, continuity equation, Bernoulli's equation, energy principle, momentum principle, and laboratory experiments. Prerequisites: CIVE 210, MATH 201, and PHYS 210.

CIVE 440 Hydraulics and Laboratory 3 cr.
A course that covers flow in conduits, flow in open channels, flow measurements, design of basic hydraulic structures and laboratory experiments. Prerequisites: CIVE 340, MATH 202, Corequisite: MATH 251, and ENGL 206.

CIVE 541 Engineering Hydrology 3 cr.
A course outlining hydrologic principles, rainfall-runoff analysis, flood routing, frequency analysis, and ground water hydrology. Prerequisites: CIVE 340, MATH 202 and EECE 2331, Corequisite: ENGL 206 and MATH 251

CIVE 542 Urban Hydrology 3 cr.
A course covering design rainfall, infiltration, overland flow, channel flow, storm sewer hydraulics, stormwater detention, and simulation models. Corequisite: CIVE 440.

CIVE 640 Advanced Hydraulics 3 cr.
A course that covers closed conduit flow, water distribution systems, transient analysis, open channel flow, flood control, culvert hydraulics, and design of various hydraulic structures. Prerequisite: CIVE 440.

CIVE 641 Surface Water Hydrology 3 cr.
A course on design storm, rainfall-runoff modeling, flood routing, reservoir routing, simulation models and stochastic hydrology. Prerequisite: CIVE 541 or equivalent.

CIVE 642 Groundwater Hydrology 3 cr.
A course that deals with properties of groundwater, Darcy's law, steady groundwater flow, unsteady groundwater flow, well hydraulics, unsaturated flow, sea-water intrusion, and numerical modeling. Prerequisite: CIVE 541.

CIVE 644 Coastal Engineering 3 cr.
A course on small-amplitude wave theory (linear theory); finite-amplitude wave theory (nonlinear theory); conoidal wave theory; solitary wave theory; wave refraction, diffraction, and reflection; wave forces and interaction with man-made structures; and design of maritime structures e.g. breakwaters. Prerequisite: CIVE 440.

CIVE 645 Surface Water Quality Modeling and Management 3 cr.
An introductory course on surface water quality pollution problems in streams, rivers, lakes, reservoirs, and estuaries with a focus on both the quantitative modeling aspects of surface water quality as well as the management and policy aspects of it. Both mechanistic and empirical models for assessing the status of surface water bodies are introduced.

CIVE 647 Water Resource Systems: Planning and Management 3 cr.
A course that introduces principles demonstrating steps in engineering policy planning as it applies to water resources management. Emphasis will be placed on systems and socioeconomics analysis, conflict management and concepts in strategic assessment.

CIVE 648 Climate Change and Water Resources 3 cr.
An introductory course on global climate change and its potential impacts on water resources and related sectors. It explores drivers of climate change, greenhouse gases emissions and mitigation efforts, and adaptation options with emphasis on integrated water resources management.

CIVE 740 Transport Phenomena in Surface and Subsurface Waters 3 cr.
A course on advection, diffusion, and dispersion of pollutants; transport in rivers and estuaries; transport in groundwater; numerical modeling; design of wastewater discharge system.

Environmental Sequence Courses

CIVE 252 Environmental Microbiology 3 cr.
A course that introduces basic principles of environmental microbiology. It discusses example applications from the natural and engineered worlds. The main goals of this course are to present an overview of important microorganisms involved in environmental systems; their ecology, interactions with various pollutants, and beneficial or harmful effects on humans.

CIVE 451 Contemporary Environmental Issues 3 cr.
Introduction to environmental quality and the technical background necessary for understanding environmental issues, controlling environmental degradation, and preserving air and water quality. Material balance concepts for tracking substances in the environmental systems. Prerequisite: CHEM 202 and CHEM 203.

CIVE 550 Water Treatment and Laboratory 3 cr.
A course that examines the quality and principles of municipal and industrial water treatment processes and methods of testing for physical, chemical, and biological parameters. Prerequisite: CHEM 202 and CHEM 203 or equivalent, or consent of instructor.

CIVE 551 Wastewater Treatment and Laboratory 3 cr.
A course that examines the quality and principles of municipal wastewater treatment processes and methods of testing for physical, chemical, and biological parameters. Prerequisite: CIVE 252 or BIOL 209, or BIOL 210 or equivalent, or consent of instructor.

CIVE 552 Waste Management and Treatment 3 cr.
A course on engineering principles, practices and techniques for the management of solid wastes: sources, composition, properties, impacts, generation, storage, collection and transport, processing, resource recovery, and disposal. Prerequisite: CHEM 202 and CHEM 203 or equivalent, or consent of instructor.

CIVE 553 Environmental Biotechnology 3 cr.
A course that examines current and emerging environmental biotechnologies used for environmental quality evaluation, monitoring, and remediation of contaminated environments; and provides students with working knowledge of the science that underpins them. Prerequisite: CIVE 252 or BIOL 209, or BIOL 210 or equivalent, or consent of instructor.

CIVE 555 Air Quality Management 3 cr.
A course on the principles, practices, and techniques for the management of air pollution: types, sources, properties, impacts, standards, control technologies, atmospheric dispersion, emissions, and indoor air quality. Prerequisite: CHEM 202 and CHEM 203 or equivalent, or consent of instructor.

CIVE 650 Water and Sewage Works Design 3 cr.
A course that examines the design of water and wastewater schemes, including design reports and a literature search on the development of conventional treatment processes. Prerequisite: CIVE 550 or CIVE 551, or consent of instructor.

CIVE 651 Processes in Water and Wastewater Treatment 3 cr.
A course on sedimentation, filterability, permeability and fluidization, ion exchange, aeration, flotation, membrane filtration and aerobic digestion. Experimental applications of processes. Prerequisites: CHEM 202 and CIVE 252, or equivalent; or consent of instructor.

CIVE 652 Landfill Engineering Design 3 cr.
A course on solid waste disposal with emphasis on design development of landfill elements (site selection and characterization, gas extraction and management, leachate collection and management, liners, covers, closure, and post-closure monitoring. Prerequisite: CIVE 552 or consent of instructor.

CIVE 653 Environmental Chemistry and Microbiology 3 cr.
A course that deals with organic, inorganic, and physical chemistry; chemical equilibrium; reaction kinetics; acidity, alkalinity; composition, morphology, and classification of microorganisms; energy, metabolism and synthesis; growth, decay and kinetics; and biological water quality indicators. Prerequisites: CHEM 202 and CIVE 252, or equivalent; or consent of instructor.

CIVE 654 Environmental Bioremediation 3 cr.
A course that discusses the application of biological treatment for the remediation of contaminated environments and highlights current engineering methods/design used to enhance biodegradation. Prerequisites: CHEM 202 and CIVE 252, or equivalent; or consent of instructor.

CIVE 655 Air Pollution and Control 3 cr.
A course that examines processes and design equipment for the control of particulates and gaseous emissions. Prerequisite: consent of instructor.

CIVE 656 Environmental Impact Assessment 3 cr.
A course on procedures of assessing/preparing/reviewing/presenting environmental impacts of developmental projects/facilities: industrial facilities, waste management/ disposal, wastewater treatment, transportation, dams and reservoirs, irrigation/drainage schemes, coastal zone developments, natural resource management, etc. Prerequisite: fourth-year status or consent of instructor.

CIVE 657 Methods of Environmental Sampling and Analysis 3 cr.
A course on sampling techniques and instrumental methods in environmental sciences; determination of pollutants in water, air, and soil; analytical techniques; adaptation of procedures to specific matrices; case studies. Prerequisites: CHEM 202 and CIVE 252, or equivalent; or consent of instructor.

CIVE 658 Industrial Waste Management 3 cr.
A course on engineering principles, practices and techniques for the management of industrial-hazardous wastes: sources, generation, properties. Impacts and auditing of industrial facilities. Basic treatment processes and disposal methods. Site remediation. Prerequisite: fourth-year status or consent of instructor.

CIVE 659 Environmental and Water Conflict Management 3 cr.
A course on the development of case studies in environmental and water conflict management taught under a framework of role-play of opponent's perspective and the decision-making thereof.

CIVE 751 Wastewater Reclamation and Reuse 3 cr.
A course that examines environmental issues in water reuse, risk assessment, water reclamation technologies, storage of reclaimed water, usage of reclaimed water, and planning of wastewater reclamation and reuse. Prerequisite: CIVE 551.

CIVE 755 Air Pollution Modeling 3 cr.
A course that deals with mathematical models, air pollution meteorology, plume rise, dispersion and atmospheric chemistry, meteorological models, as well as Gaussian, statistical and other special application models. Prerequisite: CIVE 555 or consent of instructor.

Transportation Sequence Courses

CIVE 460 Transportation Engineering and Laboratory 3 cr.
An introductory course to the field of transportation engineering through presenting the basics of traffic engineering, traffic flow theory and airport planning. The laboratory component consists of field experiments that reinforce students' understanding of academic concepts and principles. Prerequisites: STAT 230 and EECE 231, Corequisite: ENGL 206.

CIVE 461 Highway Engineering 3 cr.
A course that examines road vehicle performance; principles of geometric design and highways; horizontal and vertical alignment; earthwork; intersections and interchanges; pavement design; parking facilities; and highway planning (travel demand forecasting). Prerequisites: CIVE 201 and CIVE 301. Corequisite: ENGL 206.

CIVE 661 Urban Transportation Planning I 3 cr.
An introductory course on methods and models used in transportation planning with emphasis on the urban context. Topics include travel patterns in urban areas; data requirements for planning and data collection techniques; transportation/land-use interaction; travel demand and network models; transport supply options; and evaluation techniques. Prerequisite: CIVE 461 and EECE 231.

CIVE 662 Traffic Engineering 3 cr.
A course outlining traffic engineering studies; traffic control of signalized and unsignalized intersections; signal control hardware and maintenance; arterial performance and operations; and network optimization. Prerequisite: CIVE 460.

CIVE 663 Transportation Systems Analysis 3 cr.
A course that introduces methods, models and applications of transportation systems analysis focusing on both supply/performance and demand/economics. Prerequisite: CIVE 460 and EECE 231.

CIVE 664 Design and Management of Transport Operations 3 cr.
A course on probabilistic and optimization methods for designing efficient operations in freight carrier, airline, transit, and traffic modes. Topics include crew and vehicle scheduling in freight, airline, transit modes; vehicle routing and facility location problems in carrier systems; runway and air traffic operations; and reliability in transit services. Prerequisites: CIVE 460 and STAT 230, or equivalent.

CIVE 665 Transportation Economics 3 cr.
A course that investigates the application of economic principles to the evaluation of projects and policies in the transport sector such as transport project benefits, costs and financing, and pricing in the transport sector. Corequisite: CIVE 461 and INDE 301.

CIVE 666 Public Transportation 3 cr.
A course on public transportation modes and services; single route, network, and strategic planning; tasks involved in system operations; management of public transportation organizations; and privatization issues. Prerequisite: CIVE 460 or CIVE 461.

CIVE 761 Urban Transportation Planning II 3 cr.
A course examining advanced topics in urban transportation planning, transportation systems management techniques, travel demand analysis and discrete choice modeling of travel demand. Prerequisite: CIVE 661.

CIVE 762 Traffic Flow Theory 3 cr.
A course on characteristics of traffic flow, density, and speed; models describing traffic flow; hydrodynamic analogue; and computer simulation models. Prerequisite: CIVE 460.

Materials Sequence Courses

CIVE 370 Construction Materials and Technologies 3 cr.
An introductory course on the composition and properties of engineering materials such as asphalt, cement, concrete, geological materials, steel, polymers, and wood. Hands-on laboratory experiments and demonstrations are part of the course and are designed to familiarize students with materials, testing methods, equipment and standards. Corequisite: CIVE 310.

CIVE 670 Concrete Technology 3 cr.
A course that examines Portland cements; aggregates; pozzolans; proportioning normal concrete mixtures; pumping concrete; consolidating, finishing, and curing concrete; durability; testing hardened concrete; high-strength concrete; light and heavy weight concretes; and hot and cold weather concreting.

CIVE 671 Pavement Engineering 3 cr.
A course that examines highway and airport pavement design; flexible and rigid pavement types and wheel loads; stresses in flexible and rigid pavements; pavement behavior under moving loads; soil stabilization. The course covers empirical, mechanistic-empirical, and mechanistic design methodologies. Prerequisite: CIVE 461.

CIVE 672 Highway Materials and Construction 3 cr.
A course that covers various materials constituents in highway pavement structures with emphasis on asphalt concrete, aggregate-soil mixtures, geotextiles, and bituminous liquids. Materials properties, design, quality control and methods of construction will be described. Prerequisite: STAT 230.

CIVE 770 Viscoelastic Behavior of Construction Materials 3 cr.
A course that introduces students to viscoelastic behavior of construction materials, particularly asphalt concrete and polymer composites. The course covers basic concepts in material characterization, rheology, time-temperature superposition principles, in addition to linear and nonlinear viscoelastic models. Prerequisite: graduate standing.

CIVE 771 Pavement Management Systems 3 cr.
A course that covers the principles of pavement management including types of pavement systems, common distresses and their assessment, pavement evaluation and rating systems, in addition to performance prediction and lifecycle analysis. Various field assessment methods in addition to non-destructive and accelerated tests will be discussed and demonstrated. Maintenance and rehabilitation techniques will be compared with emphasis on selection of the most efficient, environment-friendly and cost-effective approaches. Students will utilize computer applications using GIS, regional and international inventory data, and relevant software packages. Pre/corequisite: CIVE 671 or CIVE 672.

Multidisciplinary Graduate and Senior Elective Courses

CIVE 601 GIS and Geospatial Data Modeling 3 cr.
A course that examines the concepts and principles of Geographic Information System (GIS). It provides coverage of state-of-the-art GIS methods and tools: spatial and terrain analysis, geostatistical analysis, time series analysis and development of GIS integrated models.

CIVE 602 Experimental Design and Statistical Analysis for Engineers 3 cr.
A course that covers the main steps required to efficiently plan, conduct, analyze and interpret the results from experimental and observational studies. The course focuses on statistical inference and modeling. Topics covered include ANOVA, t-tests, regression models and non-parametric tests. The course involves working within a statistical modeling environment.

CIVE 603 Numerical Modeling 3 cr.
A course that deals with ordinary differential equations: initial-, boundary- and characteristic-value problems; partial differential equations: steady state, time-dependent and oscillatory problems; techniques: Runge-Kutta, shooting, iterative and finite difference methods. Prerequisite: MATH 251.

CIVE 681 Evaluation of Cost Alternatives 3 cr.
A course that covers the principles of economic evaluations using concepts of time value of money to compare alternatives related to construction, design, and real property development.

CIVE 682 Infrastructure Systems Management 3 cr.
A course on modeling and optimization methods and their application to inspection, performance prediction and maintenance decision-making for the management of infrastructure systems.

CIVE 683 Reliability Based Design of Civil Systems 3 cr.
A course that covers applications of reliability theory in assessing the safety and reliability of civil systems in the presence of uncertainty; decision-making and risk analysis; definition of the probability of failure; modeling uncertainty in resistance and load; load and resistance factor design (LRFD) in structural and geotechnical engineering; basics of design code calibration.

CIVE 684 Environmental Geotechnics 3 cr.
A course on geotechnical practice in environmental protection and restoration; influence of physical and chemical processes in soils on the evaluation of contaminant distribution; design of waste containment systems, slurry walls and soil stabilization; the applicability and use of geosynthetics; and technologies for site restoration and cleanup. Prerequisite: CIVE 430.

CIVE 685 Environmentally Sustainable Renewable Energy Sources 3 cr.
A course that covers basic principles, potentials and limitations of various renewable energy sources and technologies, including solar energy, hydroelectricity, wind energy, bioenergy, fuel cells, batteries, and supercapacitors. Sustainability and impact of renewable energy sources on the environment will be discussed. Prerequisite: CHEM 202.

CIVE 686 Sustainable Built Environments 3 cr.
A course that enhances knowledge about the past, present and future conditions of the built environment. The course starts with a general overview of global / regional environmental, social, and economic issues. Then, focusing on the built environment, students are introduced to climate responsive and environmentally friendly concepts in planning and design. The impact of using construction materials and their environmental impact throughout the building's lifecycle will also be discussed. Students will gain critical knowledge through interactive lectures, case study analysis and the proposal of concepts relating to a particular theme. Upon completing the course, students will be equipped with the necessary knowledge that will enable them to make informed project-related design decisions in their careers.

CIVE 688 Engineering Sustainability 3 cr.
Sustainability is the grand challenge of our time especially with the UN SDG (Sustainable Development Goals) 2030 Agenda. This course addresses the basics of sustainability and its practical application in engineering to confront the main challenges of our planet, including climate change, resource depletion, social justice, environmental and health protection. The goal of the course is to introduce students to systems thinking and sustainable design principles with a focus on the effect of human activities and engineering projects on natural systems and societies. The course teaches students to use the four pillars of sustainability (human, economic, social, environmental) as a holistic approach for engineering practices. It also provides the necessary scientific tools for sustainability assessment of products and systems. Students will be also introduced to the current challenges, active debates, and unresolved research questions in sustainability.

Special Courses

CIVE 600 Seminar in Civil and Environmental Engineering 0 cr.
A seminar that consists of current research or applied civil and environmental engineering projects presented by faculty members, graduate students, or invited speakers.

CIVE 690 Special Projects 3 cr.
Special Projects

CIVE 691 Special Topics in Civil and Environmental Engineering 3 cr.
Special Topics in Civil and Environmental Engineering.

CIVE 692 Advanced Topics in Civil and Environmental Engineering 3 cr.
Advanced Topics in Civil and Environmental Engineering.

CIVE 799 ME Thesis 6 cr.
ME/MS Thesis.

CIVE 980 Qualifying Exam I: Comprehensive Exam 0 cr.
Qualifying Exam I: Comprehensive Exam.

CIVE 981 Qualifying Exam II: Thesis Proposal Defense 0 cr.
Qualifying Exam II: Thesis Proposal Defense.

CIVE 982 PhD Thesis 3 cr.
PhD Thesis.

CIVE 983 PhD Thesis 6 cr.
PhD Thesis.

CIVE 984 PhD Thesis 9 cr.
PhD Thesis.

CIVE 985 PhD Thesis 12 cr.
PhD Thesis.

CIVE 986 PhD Thesis 0 cr.
PhD Thesis.

CIVE 987 PhD Thesis Defense 0 cr.
PhD Thesis Defense.

Department of Electrical and Computer Engineering

Chairperson	Chehab, Ali
Associate Chairperson	Costantine, Joseph
Professors	Abou-Faycal, Ibrahim; Bazzi, Louay; Chaaban, Farid; Chedid, Riad; Chehab, Ali; Costantine, Joseph; Dawy, Zaher; Elhajj, Imad; El- Hajj, Ali; Jabr, Rabih; Kabalan, Karim; Karaki, Sami; Kayssi, Ayman; Sharafeddine, Sanaa
Associate Professors	Awad, Mariette; Daher, Naseem; Saghir, Mazen; Tawk, Youssef; Zaraket, Fadi
Assistant Professors	Atallah, Jad; Chehimi, Mahdi; Fahs, Jihad; Issa, Ibrahim; Sarieddeen, Hadi; Tajeddine Razane
Adjunct Professors	Hajj, Hazem; Mansour, Mohammad; Kanj, Rouwaida
Full-Time Lecturers	Bakri, Hussein; El Dassouki, Khaled; Jlailaty, Hussein; Mohanna, Ammar; Moukadem, Imad; Shwaykani, Hassan
Part-Time Lecturers	Alkhansa, Rasha; Bichara, Rosette Maria; El Abbasi, Mona; Hussein, Ali
Senior Instructors	Ashkar, Nicolas; Chebaro, Malek

Undergraduate Programs

The Department of Electrical and Computer Engineering offers two undergraduate programs leading to the degree of bachelor of engineering in addition to one minor and two concentrations.

The two undergraduate programs are:

- Computer and Communications Engineering (CCE)
- Electrical and Computer Engineering (ECE)

Programs Mission

We promote excellence in undergraduate and graduate education, research, and service to the profession at the regional and global levels. We offer world-class academic programs built upon a solid foundation of engineering, science, and liberal education. We prepare students to be professionals, capable of being leaders, entrepreneurs, and researchers, who deploy their skills with ingenuity, integrity, and responsibility.

The computer and communications engineering program allows students to focus on the areas of communication systems, networks, or software systems. The electrical and computer engineering program allows students to focus on the areas of power and energy systems, electromagnetics and radio frequency systems, or control and intelligent systems. The ECE and CCE programs also allow students to focus on electronics or computer systems.

The two programs require the completion of 150 credits including an internship and a final year project; and prepare students for professional careers as well as graduate studies.

The ECE Department offers a minor and a concentration in artificial intelligence, as well as a concentration in control and robotics.

Programs Educational Objectives

The objectives of the ECE department undergraduate programs are to enable the graduates of the program to:

- Achieve their employment or post-graduate educational goals.
- Advance in their careers through leadership, life-long learning, innovation, critical thinking, integrity, and civic responsibility.

Bachelor of Engineering (BE) Major: Computer and Communications Engineering

Program Requirements

- **General Engineering:** FEAA 200, INDE 301
- **Mathematics:** MATH 201; MATH 202; MATH 211 or CMPS 211; MATH 218 or 219; STAT 230/233; and one of MATH 210, 224, 227, MATH/CMPS 251 or 261
- **Sciences:** PHYS 210, PHYS 210L, CHEM 201 or 202, CHEM 203 or 205, and one additional science elective
- **General Education:**
  Understanding Communication (9 credits): 3 credits Arabic course, ENGL 203, and ENGL 206
  Understanding Ourselves (15 credits): 6 credits from “Societies & Individuals” and 9 credits from “Cultures & Histories”. Out of these 15 credits, 3 credits must fulfill the thematic requirement: Social inequalities, and 3 credits must fulfill the thematic requirement: History of Ideas (Must be a CHLA 2xx course).

Understanding Our Role in the World (6 credits): 3 credits course from Community Engaged Learning, and 3 credits course from Human Values (Must be INDE 410).

- **ECE Core Courses:** EECE 210, EECE 230, EECE 290, EECE 310, EECE 311, EECE 320, EECE 321, EECE 330, EECE 340, EECE 350, EECE 380, EECE 442
- **ECE Laboratories:** EECE 310L, EECE 321L, EECE 410L, two additional laboratories: one restricted laboratory and one elective laboratory
- **CCE Focus Area Electives:** Four restricted elective courses from the list of CCE Focus Area courses with a minimum of two courses from one area and no more than three courses from any given area.
- **Undergraduate Elective:** 3 credits of EECE 300 or 400 level courses
- **EECE Electives:** 6 credits of EECE with a number equal to, or greater than, 300 (except EECE 312)
- **Pre-Approved Electives:** 9 credits of coursework from the list of pre-approved electives.
- **Approved Experience:** EECE 500 or CO-OP program [FEAA 500 and FEAA 500A (FEAA 500A counts as two pre-approved electives within major)]
- **Final Year Project:** (EECE 501 and EECE 502) or (VIPP 501 and VIPP 502)

Curriculum for BE in Computer and Communications Engineering

Term I (Fall)		**Credits**
MATH 218/219	Elementary Linear Algebra with Applications/Linear Algebra	3
EECE 210	Electric Circuits	3
ENGL 203	Academic English	3
MATH 201	Calculus and Analytic Geometry III	3
MATH/CMPS 211	Discrete Mathematics/Discrete Structures	3
		Total 15

Term II (Spring)		**Credits**
FEAA 200	Introduction to Engineering and Architecture	3
EECE 230	Introduction to Computation and Programming	3
EECE 290	Analog Signal Processing	3
MATH 202	Differential Equations	3
PHYS 210	Introductory Physics II	3
PHYS 210L	Introductory Physics Laboratory II	1
		Total 16

Term III (Summer)		Credits
CHEM 201/202	Chemical Principles/Introduction to Environmental Chemistry	3
CHEM 203/205	Introductory Chemical Techniques/Introductory Chemistry Laboratory	2
Cultures and Histories or Societies and Individuals Elective		3
		Total 8

Term IV (Fall)		Credits
EECE 310	Electronics	3
EECE 310L	Electric Circuits Laboratory	1
EECE 320	Digital Systems Design	3
EECE 330	Data Structures and Algorithms	3
EECE 380	Engineering Electromagnetics	3
STAT 230/233	Introduction to Probability and Statistics/Advanced Probability and Random Variables	3
		Total 16

Term V (Spring)		Credits
EECE 311	Electronic Circuits	3
EECE 321	Computer Organization	3
EECE 321L	Computer Organization Laboratory	1
EECE 340	Signals and Systems	3
EECE 350	Computer Networks	3
Science Elective		3
		Total 16

Term VI (Summer)		Credits
ENGL 206	Technical English	3
ARAB		3
Cultures and Histories or Societies and Individuals Elective		3
		Total 9

Term VII (Fall)		Credits
EECE 442	Communication Systems	3
EECE	CCE Focus Area Elective 1	3
EECE	CCE Focus Area Elective 2	3
INDE 301	Engineering Economy	3
MATH Elective		3
		Total 15

Term VIII (Spring)		Credits
EECE	CCE Focus Area Elective 3	3
EECE	CCE Focus Area Elective 4	3
EECE 410L	System Integration Laboratory	1
INDE 410	Human values	3
Community Engaged Learning		3
Cultures and Histories or Societies and Individuals Elective		3
		Total 16

Term IX (Summer)		Credits
EECE 500/CO-OP	Approved Experience	6
		Total 6

Term X (Fall)		Credits
EECE 501/ VIPP 501	Final Year Project I	3
EECE	Restricted Laboratory	1
EECE	EECE 3xx/4xx Elective	3
EECE	EECE Elective 1	3
EECE or Other	Pre-Approved Elective 1	3
Cultures and Histories or Societies and Individuals Elective		3
		Total 16

Term XI (Spring)		Credits
EECE 502/ VIPP 502	Final Year Project II	4
EECE	Elective Laboratory	1
EECE	EECE Elective 2	3
EECE or Other	Pre-Approved Elective 2	3
EECE or Other	Pre-Approved Elective 3	3
Cultures and Histories or Societies and Individuals Elective		3
		Total 17

Total Credit Hours	**150**

List of CCE Focus Area Courses

- **Area 1:** Applied Electromagnetics and RF Systems: EECE 480, 481, 482, 484, 485, 486, 487, 488
- **Area 2:** Computer Hardware Systems: EECE 411, 412, 420, 421, 422, 423, 425
- **Area 3:** Communications and Networking: EECE 440, 444, 446, 451, 454, 455, 491
- **Area 4:** Software Systems: EECE 331 or CMPS 214, EECE 338 or CMPS 215, EECE 332, 334, 430, 432, 433, 435, 437, 438, 439, 490

List of CCE Restricted Labs

EECE 412L, 430L, 431L, 434L, 435L, 442L, 451L, 480L, 655L

List of Pre-Approved Electives

Refer to the section of pre-approved electives.

List of Science Electives

BIOL 201, BIOL 202, BIOL 209, BIOL 210, CHEM 207/211, FEAA 300, GEOL 201, GEOL 203, GEOL 204, GEOL 205, GEOL 211, MAUD 204, PHYL 246, PHYS 212, PHYS 217, PHYS 223, PHYS 235, PHYS 236, PSYC 222, PSYC 224

Bachelor of Engineering (BE) Major: Electrical and Computer Engineering

Program Requirements

- **General Engineering:** FEAA 200, INDE 301
- **Mathematics:** MATH 201; MATH 202; MATH 211 or CMPS 211; MATH 218 or 219; STAT 230/233; and one of MATH 210, 224, 227, MATH/CMPS 251, 261
- **Sciences:** PHYS 210, PHYS 210L, CHEM 201 or 202, CHEM 203 or 205, and one additional science elective
- **General Education:**
  Understanding Communication (9 credits): 3 credits Arabic course, ENGL 203, and ENGL 206
  Understanding Ourselves (15 credits): 6 credits from “Societies & Individuals” and 9 credits from “Cultures & Histories”. Out of these 15 credits, 3 credits must fulfill the thematic requirement: Social inequalities, and 3 credits must fulfill the thematic requirement: History of Ideas (Must be a CHLA 2xx course).
  Understanding Our Role in the World (6 credits): 3 credits course from Community Engaged Learning, and 3 credits course from Human Values (must be INDE 410).
- **ECE Core Courses:** EECE 210, 230, 290, 310, 311, 320, 321, 330, 340, 370, 380
- **ECE Laboratories:** EECE 310L, EECE 321L, EECE 410L, two additional laboratories: one restricted laboratory and one elective laboratory
- **ECE Focus Area Elective:** Four restricted elective courses from the list of ECE Focus Area courses with a minimum of two courses from one area and no more than three courses from any given area.
- **Undergraduate Electives:** 6 credits of EECE 300 or 400 level courses
- **EECE Electives:** 6 credits of EECE with a number equal to, or greater than, 300 (except EECE 312)
- **Pre-Approved Electives:** 9 credits of coursework from the list of pre-approved electives.
- **Approved Experience:** EECE 500 or CO-OP program [FEAA 500 and FEAA 500A (FEAA 500A counts as two pre-approved electives within major)]
- **Final Year Project:** (EECE 501 and EECE 502) or (VIPP 501 and VIPP 502)

Curriculum for BE in Electrical and Computer Engineering

Term I (Fall)		Credits
FEAA 200	Introduction to Engineering and Architecture	3
EECE 210	Electric Circuits	3
ENGL 203	Academic English	3
MATH 201	Calculus and Analytic Geometry III	3
PHYS 210	Introductory Physics II	3
PHYS 210L	Introductory Physics Laboratory II	1
		Total 16

Term II (Spring)		Credits
EECE 230	Introduction to Computation and Programming	3
EECE 290	Analog Signal Processing	3
MATH 202	Differential Equations	3
MATH 218/219	Elementary Linear Algebra with Applications/Linear Algebra	3
MATH/CMPS 211	Discrete Mathematics/Discrete Structures	3
		Total 15

Term III (Summer)		Credits
CHEM 201/202	Chemical Principles/Introduction to Environmental Chemistry	3
CHEM 203/205	Introductory Chemical Techniques/Introductory Chemistry Laboratory	2
Cultures and Histories or Societies and Individuals Elective		3
		Total 8

Term IV (Fall)		Credits
EECE 310	Electronics	3
EECE 310L	Electric Circuits Laboratory	1
EECE 320	Digital Systems Design	3
EECE 330	Data Structures and Algorithms	3
EECE 370	Electric Machines and Power Fundamentals	3
STAT 230/233	Introduction to Probability and Statistics/Advanced Probability and Random Variables	3
		Total 16

Term V (Spring)		Credits
EECE 311	Electronic Circuits	3
EECE 321	Computer Organization	3
EECE 321L	Computer Organization Laboratory	1
EECE 340	Signals and Systems	3
EECE 380	Engineering Electromagnetics	3
Science Elective		3
		Total 16

Term VI (Summer)		Credits
ENGL 206	Technical English	3
ARAB	Arabic Course	3
Cultures and Histories or Societies and Individuals Elective		3
		Total 9

Term VII (Fall)		Credits
EECE	ECE Focus Area Elective 1	3
EECE	ECE Focus Area Elective 2	3
MATH	Math Elective	3
INDE 301	Engineering Economy	3
Community Engaged Learning		3
		Total 15

Term VIII (Spring)		Credits
EECE	ECE Focus Area Elective 3	3
EECE	ECE Focus Area Elective 4	3
EECE	EECE 3xx/4xx Elective 1	3
EECE 410L	System Integration Laboratory	1
INDE 410	Human Values	3
Cultures and Histories or Societies and Individuals Elective		3
		Total 16

Term IX (Summer)		Credits
EECE 500/CO-OP	Approved Experience	6
		Total 6

Term X (Fall)		Credits
EECE 501/ VIPP 501	Final Year Project I	3
EECE	EECE 3xx/4xx Elective 2	3
EECE	Restricted Laboratory	1
EECE	EECE Elective 1	3
EECE or Other	Pre-Approved Elective 1	3
Cultures and Histories or Societies and Individuals Elective		3
		Total 16

Term XI (Spring)		Credits
EECE 502/ VIPP 502	Final Year Project II	4
EECE	EECE Elective 2	3
EECE	Elective Laboratory	1
EECE or Other	Pre-Approved Elective 2	3
EECE or Other	Pre-Approved Elective 3	3
Cultures and Histories or Societies and Individuals Elective		3
		Total 17

Total Credit Hours	**150**

List of ECE Focus Area Courses

- **Area 1:** Electromagnetics and RF Systems: EECE 480, 481, 482, 484, 485, 486, 487, 488
- **Area 2:** Computer Hardware Systems: EECE 411, 412, 420, 421, 422, 423, 425
- **Area 3:** Power and Energy Systems: EECE 471, 473, 474, 476
- **Area 4:** Control and Intelligence Systems: EECE 460, 461, 466

List of ECE Restricted Labs

EECE 412L, 460L, 462L, 470L, 471L, 473L, 480L

List of Science Electives

BIOL 201, BIOL 202, BIOL 209, BIOL 210, CHEM 207/211, FEAA 300, GEOL 201, GEOL 203, GEOL 204, GEOL 205, GEOL 211, MAUD 204, PHYL 246, PHYS 212, PHYS 217, PHYS 223, PHYS 235, PHYS 236, PSYC 222, PSYC 224

List of Pre-Approved Electives (CCE and ECE)

Electives Within Major

- Any EECE course with a number equal to, or greater than, 300 (except EECE 312)
- Any of the following courses in CMPS: 232/332, 262, 279, 280, 285/385, 288, 314, 315, 316, 323, 345, 351, 365, 371
- FEAA 500A
- VIPP 201A, 202A, 301A, 401A

Electives Outside Major

- Any ENMG course with a number equal to, or greater than, 600
- ACCT 211, 215
- ARDS 400
- BIOL 201, 202, 210, 223, 224, 225, 243, 244, 247, 260, 268, 290, 370
- BMEN 501, 502, 600, 601, 603, 605, 606, 607, 608, 609, 610, 611, 798CC
- CHEM 200, 201, 202, 206, 208, 211, 212, 215, 217, 218, 227, 228, 229
- CHEN 490, 675
- CIVE 460, 461, 553, 601, 602, 655, 661, 662, 663, 664, 665
- DCSN 200, 210, 211, 216
- ECON 214, 215, 217, 218, 222, 223/224, 226, 227, 228, 230, 232, 235, 236, 237, 239, 240, 241, 242, 243, 333, 341
- ENST 300
- ENTM 225, 235
- FEAA 520
- FINA 211, 220
- GEOL 201, 204, 205, 206, 211, 212, 213, 219, 221
- INDE 302, 303, 412
- MATH 210, 212, 213, 214, 220, 223, 224, 227, 234, 238, 241, 242, 251, 261, 271, 281, 303, 304, 306, 314, 315, 341, 344, 351
- MECH 310, 314, 320, 340, 550, 631, 633, 634, 641, 642, 674
- MKTG 210, 225
- MNGT 218, 220, 229, 230
- PHYL 246
- PHYS 212, 217, 223, 225, 226, 235, 236, 249
- PSYC 226, 229
- Any STAT course with a number equal to, or greater than, 234
- VIPP 201B, 202B, 301B, 401B

Concentration and Minor in Artificial Intelligence

The concentration in artificial intelligence can be pursued by all ECMP/EECE students in the ECE department, and the minor in artificial intelligence can be pursued by all other AUB undergraduate students. Only students who have a cumulative GPA of 2.3 or more are eligible to apply for the minor.

Concentration Requirements (for ECMP/ EECE)

In order to satisfy the requirements of the concentration, students must earn 18 credits of course work from the courses listed below.

- EECE 490 (required)
- EECE 693 (required)
- One of the following PSYC courses: 220, 222, 224, 226 or 229
- One elective from List A
- One elective from List A or List B
- One elective from either List A, B, or C

Concentration Elective courses

- **List A:** EECE 639, 664, 668, 699, CMPS 276/262, STAT 239.
- **List B:** CMPS 351, EECE 634, EECE 641, EECE 669, EECE 692, ENMG 604, ENMG 616, MATH 234, MATH 351, MECH 691/EECE 648/ENMG 628, STAT 234, STAT 235.
- **List C:** EECE 331 or CMPS 214, 334, 422, 423/623, 433, 466, 491, 603, 636, 644, 660, 661, 665, 694, 696.

At least THREE courses must be EECE courses taken in the ECE Department. At least one course from List A or List B must be an EECE course. Required EECE courses cannot be replaced by equivalent courses taken outside the department. Concentration open only for ECMP and EECE majors. Concentration cannot be claimed together with minor in AI in the ECE Department or minor in data science in the CMPS Department.

Minor Requirements (for all AUB students)

In order to satisfy the requirements of the minor, students must earn 18 credits of course work from the courses listed below.

- EECE 230, EECE 231 or CMPS 201
- EECE 490 (required)
- One of the following STAT courses: 201, 210, 230, or 233
- One of the following PSYC courses: 220, 222, 224, 226 or 229
- One elective from List A
- One elective from List A or List B

Minor Elective courses

- **List A:** EECE 639, 664, 668, 692, 693, 699, CMPS 276/262, MECH 642.
- **List B:** CMPS 202, EECE 330, 433, 634, 636, 641, 663, 694, 696, MATH 234, STAT 234.

At least TWO courses must be EECE courses taken in the ECE Department. At least one course from List A or List B must be an EECE course. Required EECE courses cannot be replaced by equivalent courses taken outside the department. Minor cannot be claimed together with the concentration in AI in the ECE Department or minor in data science in the CMPS Department. No more than 9 credit hours taken in the major field of study may be used to satisfy a requirement for another minor.

Concentration in Control and Robotics

The ECE concentration in control and robotics provides a coherent academic framework between the ECE and ME departments in the areas of control, instrumentation, and robotics. This concentration supports interested undergraduate ECE and ME students in pursuing additional control system modeling and design as given in either department based on their individual preferences. This concentration is open to all undergraduate ECE and ME students and will be indicated, upon its completion, on the transcript of participating students.

ECE students interested in taking the control and robotics concentration must satisfy the following course requirements.

- EECE 460 (3 cr.)
- EECE 461 (3 cr.)
- EECE 460L (1 cr.)
- One elective from list A (Control)
- One elective from list B (Robotics)
- One elective from either list A, B, or C
- Total number of credits: 16

Elective Courses

- **List A- Control:** EECE 466, EECE 660/MECH 653, EECE 662/MECH 655, EECE 663/MECH 656, EECE 665/MECH 654, and EECE 669/MECH648
- **List B- Robotics:** EECE 560/MECH 530, EECE 661/MECH 641, EECE 697/MECH 646, and EECE 698/MECH 650
- **List C- Others:** EECE 490/MECH 534, EECE 648/MECH 691/ENMG 628, EECE 692/MECH 642, and MECH 647

Course Descriptions

FEAA 200 Introduction to Engineering and Architecture 3 cr.
The course is designed to familiarize first year students with the different disciplines in engineering and architecture including: architecture, civil, mechanical, electrical, chemical, industrial and technologies used in the fields. The course takes a unique interdisciplinary approach to the field and introduces the related disciplines in the world of engineering and architecture. One key objective is to promote interdisciplinary interaction and innovative thinking. The course is organized into modules covering the different disciplines within the Maroun Semaan Faculty of Engineering and Architecture (MSFEA). The last module of the class showcases interdisciplinary projects demonstrating interactions among the different fields. The lectures explain as applicable to each discipline, through examples, notions of problem solving, design thinking, process of invention and innovation, environmental and civic responsibility, and measures of success in aesthetics and performance. The course project is a key component of the course. It is interdisciplinary in nature bringing ideas and solutions from all disciplines in engineering and architecture. Annually.

FEAA 500 (6 cr./1 b.) / 500A (6 cr./6 b.) Cooperative Education and Experiential Learning
This course places students in a recognized firm in Lebanon or abroad for a supervised immersive learning experience in which they work as junior-level professionals in their fields of study. For a minimum of six months, students work full-time in a paid position where they apply their knowledge to challenging problems related to their field of study. This course extends over two terms and is registered twice as FEAA 500 and FEAA 500A in order to cover the six-months period. FEAA 500: 0 credit- 3 billing - grade (PR) – prerequisites: approval of the course coordinator and completion of a minimum of 90 credits for engineering students (120 credits for architecture students). FEAA 500A: 3 credits – 0 billing – prerequisites: FEAA 500.

FEAA 520 Data Centric Design 3 cr.
This course introduces students to the various types of data, the basics of sensing, data acquisition, database design, and data analytics. FEAA 520 combines theoretical topics in machine learning with practical methods for solving problems, using Python or other programming languages. The students are exposed to supervised and unsupervised machine learning algorithms (e.g., clustering, linear regression, and classification), as well as basic deep learning architectures. The topics are demonstrated with examples from all engineering disciplines and several hands-on laboratory sessions. Prerequisites: EECE 230/231, MATH 201, and STAT 230 (MATH 218/219 is preferred but not mandatory).

EECE 210 Electric Circuits 3 cr.
A course on fundamentals of electric circuits; basic elements and laws; techniques of circuit analysis: node voltage, mesh current, superposition, Thevenin's and Norton's theorems, and source transformation; operational amplifiers; inductors, capacitors, and duality; mutual inductance and transformers; steady-state AC circuits; power calculation in ac circuits; analysis of balanced three phase circuits with power calculations; circuit simulation using PSPICE.

EECE 230 Introduction to Computation and Programming 3 cr.
This is an introductory programming course with an emphasis on abstractions and elementary algorithmic ideas. It uses the Python programming language. Topics include data types, selection, repetition, lists, tuples, strings, functions, files, plotting, exception handling, program efficiency, recursion, divide and conquer algorithms, recurrence relations, sorting and searching algorithms, binary search, merge sort, randomized quicksort, dictionaries, memorization, classes and object-oriented programming, stacks and queues, applications, and selected topics. The course has a weekly lab. Students cannot receive credits for both EECE 230 and CMPS 201.

EECE 231 Introduction to Computation and Programming with Applications 3 cr.
This is an introductory course designed to provide students with a comprehensive foundation in Python programming with a strong emphasis on data-centric applications. Students will embark on a journey through the fundamental principles of programming, mastering Python syntax, data types, control structures, functions, lists, dictionaries, sets, tuples, object-oriented programming, etc. while simultaneously delving into the realm of data science by gaining hands-on experience applying these skills to analyze, manipulate, and visualize data from various disciplines of engineering and sciences. Through a hands-on and assignments/project-based approach, students will develop the skills necessary to analyze, visualize, and draw insights from real-world datasets. This course is not considered equivalent to EECE 230; hence, students who have taken this course and wish to transfer to ECE will need to take EECE 230.

EECE 290 Analog Signal Processing 3 cr.
A course on selected topics in circuit analysis; operational amplifiers; frequency responses; Butterworth and active filters; responses to periodic inputs; real, reactive and complex power; maximum power transfer; responses to step, impulse and switching operations; convolution; Laplace transform and its use in circuit analysis; Fourier transform; two-port circuits; and circuit simulation using SPICE. Prerequisite: EECE 210.

EECE 310 Electronics 3 cr.
A course on semiconductors; PN junctions; diodes and diode circuits; MOS transistor and applications such as amplifier and switch; bipolar junction transistor and applications such as amplifier and switch; and circuit simulation using SPICE. Prerequisite: EECE 290.

EECE 310L Electric Circuits Laboratory 1 cr.
A laboratory course that covers passive electronic components; laboratory instruments; voltage-divider circuits; sources and Thevenin's Theorem; RC lead-lag networks; series resonance; the transformer; op-amp circuits; single-phase rectifier circuits; LEDs; Zener diode regulator; diode clamping and clipping; BJT and MOSFET characteristics. Pre/corequisite: EECE 310.

EECE 311 Electronic Circuits 3 cr.
A course on BJT amplifiers; MOSFET amplifiers; differential amplifiers; frequency response of amplifiers; feedback; operational amplifiers; oscillators; digital CMOS circuits; SPICE simulations. Prerequisite: EECE 310.

EECE 312 Electronics (for Mechanical Engineering students) 3 cr.
This course introduces fundamentals of electronics and electronic circuits to non- majors. Its objectives are to provide concise treatment of the basic concepts of electronic components and to introduce students to basic analog and digital electronic circuits. The course covers the fundamentals of semiconductor diodes, transistors, operational amplifiers and their applications, digital circuits and systems, and basic instrumentation. Prerequisite: EECE 210.

EECE 312L Circuits and Electronics Lab 1 cr.
A laboratory course for non-majors that covers passive electronic components, laboratory instruments, voltage-divider circuits, sources and Thevenin's Theorem, diode circuits and applications, transistor applications, op-amp circuits, passive filters, digital circuits, and instrumentation. Pre/corequisite: EECE 312.

EECE 320 Digital Systems Design 3 cr.
This course introduces the fundamental principles and practices of digital systems design, including binary codes, Boolean algebra, combinational and sequential circuit design, circuit optimization techniques, finite state machines, and digital arithmetic circuits. Students will learn the Verilog hardware description language and use simulation tools for functional verification. A major semester-long design project in Verilog provides students with hands-on experience in applying these concepts to practical digital system design. Prerequisite: EECE 230 or EECE 231 or CMPS 201.

EECE 321 Computer Organization 3 cr.
This course covers single-core microprocessor computer organization and basic input/ output mechanisms. Students learn how to program microprocessors at the assembly level and how to design the main core components of a von Neumann computer system, including its instruction set architecture, datapath, control unit, cache and system buses. To consolidate the material, students work on a Verilog design project of a single-cycle RISC-V microprocessor core. Students cannot receive credits for both EECE 321 and CMPS 221. Prerequisites: EECE 320 and Pre/corequisite EECE 330.

EECE 321L Computer Organization Laboratory 1 cr.
A laboratory course with experiments in computer organization and interfacing techniques; digital hardware design using CAD tools and FPGAs; program-controlled and interrupt driven I/O; memory organization; simple peripheral devices and controllers; bus interfaces; microcontroller-based designs. Pre/corequisite: EECE 321.

EECE 330 Data Structures and Algorithms 3 cr.
This is an introductory course in data structures and algorithms with an emphasis on programming. The course uses the C++ programming language. Topics include: elements of C++, memory management, C++ classes and templates, linked-lists, sacks, queues, standard template library, binary trees, binary search trees, balanced trees, heaps, priority queues, hashing, graph traversals, introduction to graph algorithms. The course has a weekly lab. Students cannot receive credits for both EECE 330 and CMPS 202. Prerequisites: EECE 230 and Pre/corequisite: MATH 211 or CMPS 211.

EECE 331 Design and Analysis of Algorithms 3 cr.
This course covers techniques for the design and analysis of efficient algorithms. Topics include: divide and conquer, dynamic programing, and greedy design strategies; sorting algorithms including merge sort, randomized quicksort, counting sort, and radix sort; median and order statistics algorithms; sorting lower bound; matrix multiplication and elementary arithmetic algorithms; balanced search trees; augmenting data structures; hash tables; data structures for disjoint sets; amortized analysis; graph traversal algorithms and applications, minimum spanning tree algorithms, shortest path algorithms; maximum flow; introduction to NP completeness. Students cannot receive credits for both EECE 331 and CMPS 214. Prerequisite: EECE 330.

EECE 332 Object-Oriented and Effective Java Programming 3 cr.
This course covers object-oriented and effective Java programming concepts for the production of reliable and maintainable code. Topics include data abstraction and encapsulation; polymorphism; generics; specifications and exceptions; reflection; multi-threading; database connectivity with JDBC; in addition to traditional testing techniques and test-driven development. The course will highlight good programming practices and expose bad practices. Prerequisite: EECE 330.

EECE 334 Programming Language Design and Implementation 3 cr.
This course examines the design and implementation of widely adopted programming languages. Topics include data types; bindings; run-time management; object- orientation; syntax analysis; semantic analysis; and the implementation of compilers and interpreters. Functional and logic programming principles are also covered. This course is considered equivalent to CMPS 231; hence, students cannot receive credits for both EECE 334 and CMPS 231. Prerequisite: EECE 332.

EECE 338 Theory of Computation 2 cr.
This course covers the basics of automata and language theory, computation theory, and complexity theory. The first part of the course is about automata and regular languages, context free grammar, Church's thesis, decidability, and reducibility. Topics in the second part of the course include: time complexity and NP-completeness, space complexity, polynomial-space and log-space computations, circuit complexity, probabilistic computations and complexity classes, approximation algorithms, and selected topics as time permits. Students cannot receive credits for both EECE 338 and CMPS 215. Prerequisites: EECE 330 and STAT 230 or STAT 233.

EECE 340 Signals and Systems 3 cr.
This course covers basic concepts and methods related to continuous and discrete-time signals and systems. The course includes: signals and systems and their properties, linear time invariant systems, stability analysis, sampling of continuous-time signals, z-transform, discrete Fourier transform, time and frequency domain representations of discrete-time signals and systems, and introductory concepts in communications. Prerequisites: EECE 290 and MATH 202.

EECE 350 Computer Networks 3 cr.
This course provides a comprehensive introduction to the fundamental concepts and principles in computer networks, with an emphasis on the Internet protocol stack. Topics include: the Internet structure, performance metrics, application layer protocols, transport layer protocols, internetworking and routing, data link layer technologies, software defined networking, and socket programming. Prerequisite: EECE 330.

EECE 370 Electric Machines and Power Fundamentals 3 cr.
The course covers three-phase circuits, magnetic circuits, transformers: ideal and real, construction, operation, autotransformers and three-phase transformers; fundamentals of AC machine: construction and basic concepts; synchronous generators: construction, equivalent circuits, testing and performance characteristics; induction motors construction, principle of operation, tests, power, and torque expressions. Prerequisite: EECE 290.

EECE 380 Engineering Electromagnetics 3 cr.
This course covers the fundamentals of applied electromagnetics by emphasizing physical understanding and practical applications in Electrical and Computer Engineering systems. It deals with the study of static electric fields in vacuum and dielectrics, conductors, capacitance, electrostatic energy and forces, Poisson's equation, static magnetic fields, Biot-Savart law, Ampere's law, vector magnetic potential, inductance, Maxwell's equations for time-varying fields, Faraday's law, waves and phasors, time-harmonic fields. The bridge between electric circuits and electromagnetics is done through the study of transmission lines and their lumped-element model, transmission line input impedance, and power flow on lossless transmission lines. Prerequisites: EECE 210 and MATH 202.

EECE 407/607 Quantum Communication Networks 3 cr.
This course provides a deep dive into quantum communications, quantum networks, and the emerging quantum Internet. Starting with the basics of quantum information, the course explores the building blocks of quantum communication networks, including single-photon and entanglement generation sources, quantum channels (free-space optical and optical fiber), quantum noise, and decoherence. Advanced topics include quantum memory, quantum switches, quantum repeaters, and quantum detectors. We will also cover distributed quantum sensing and machine learning applications over the quantum Internet, along with secure quantum communication protocols like quantum key distribution and the necessary process of entanglement distribution over the quantum Internet. Finally, the course will cover advanced techniques to enable scalable quantum communications including entanglement swapping, entanglement distillation, and quantum error correction. In achieving these goals, the course will include an introduction to state-of-the-art quantum network simulators, like NetSquid, where students will get a chance to design and simulate hybrid quantum-classical communication networks and evaluate their performance. A solid understanding of linear algebra is necessary, in addition to a good understanding of communication theory. Prerequisites: MATH 218/219 and STAT 230/233.

EECE 410L System Integration Laboratory 1 cr.
A laboratory course that introduces students to a variety of tools and reinforces their design skills to successfully realize a functional device. The laboratory covers a wide range of areas ranging from basic electronics, motor control, communication, micro-controllers, human machine interface, signal generation and measurement, and instrumentation. In addition to the mentioned topics, students are introduced to C language programming for embedded systems and techniques of circuit design and fabrication. Prerequisites: EECE 310L and Pre/corequisites: EECE 321L and EECE 311.

EECE 411/611 Analog Integrated Circuits 3 cr.
Technology and limitations. IC design flow. Differential structures. Voltage regulators and converters, reference, and bias circuits. Output stages. Mixed-signal circuits overview. Noise and linearity analysis and modeling. Comparators. Sample-and-hold and trans-linear circuits. Discrete-time signals. Switched-capacitor circuits. Data converter fundamentals. Nyquist-rate D/A converters. Nyquist-rate A/D converters. Oversampling converters. Phase-locked loops. This course makes extensive use of EDA tools for custom IC design. Prerequisite: EECE 311.

EECE 412/612 Digital Integrated Circuits 3 cr.
This course is an introduction to digital integrated circuits. Material will cover CMOS devices and manufacturing technology, CMOS inverters and gates, propagation delay, noise margins, power dissipation, and regenerative logic circuits. Various design styles as well as issues designers face, such as technology scaling and the impact of interconnect, are investigated. The course starts with the core digital design block, the CMOS inverter, and then various CMOS implementations are discussed. The design of more complex combinational gates such as NAND, NOR, XORs will be considered, looking at optimizations for speed, area, or power the influence of interconnect parasitics on circuit performance and approaches to cope with them are treated in detail. The course concludes with an examination of design methodologies. Spice simulation will be embedded in lectures as practical application for lectures to emphasize DC and transient analysis. Prerequisites: EECE 310 and EECE 320.

EECE 412L VLSI Computer Aided Design Lab 1 cr.
This is VLSI design course that introduces students to the basics of integrated circuit (IC) designs using computer aided design (CAD) tools. The lab familiarizes students with the IC design flow using the industry-standard Cadence Design Systems tools. Custom design of basic ICs is covered at the physical layout, circuit, logic, and system levels. Lab assignments include design and simulation projects using CAD tools for physical layout design, schematic capture, place-and-route of standard cells, logic verification, circuit extraction and simulation. Pre/corequisite: EECE 412 or EECE 612.

EECE 420 Digital Systems Design II 3 cr.
This course builds on background from a first course on logic design and focuses on principles and methodologies of digital logic design at the block and subsystem levels. It covers the design of relatively large and complex digital systems including arithmetic blocks, data path subsystems, data path controllers, programmable storage devices (ROM, SRAM, FLASH, DRAM), programmable logic devices (CPLDs, FPGAs), and memory buffers. Synchronous and asynchronous logic design principles are covered, including pipelining, asynchronous handshake methodologies, and synchronization across multiple clock domains. Behavioral modeling and synthesis of combinational and sequential logic are discussed. The Verilog language is introduced in an integrated manner throughout the course to support design examples. The course includes a design project to be integrated on a modern FPGA platform. Prerequisite: EECE 320.

EECE 421/621 Computer Architecture 3 cr.
A course on the principles, techniques and trade-offs used in designing modern processor core architectures. Topics include benchmarking and performance evaluation; hardware instruction level parallelism techniques (pipelining, superscalar, out-of-order execution, branch prediction); software instruction level parallelism techniques (loop unrolling, software pipelining, predicated execution, EPIC architecture), virtual memory and high-performance memory systems; domain-specific architectures. Prerequisite: EECE 321.

EECE 422 Parallel Computer Architecture and Programming 3 cr.
A course on high-performance computer architectures with emphasis on shared memory and distributed parallel architectures and programming models. Topics include simultaneous multithreading processors, multicore processors, SIMD processors, UMA, NUMA and COMA shared-memory multiprocessors, distributed multiprocessors, snoopy and directory-based cache coherence protocols, memory consistency models, high performance synchronization methods, speculative lock elision, shared memory programming model, message passing programming model and transactional memory programming model. To consolidate the material presented in class, students work on designing parallel programs using the OpenMP threading environment and MPI message passing programming standard. Prerequisite: EECE 321.

EECE 423/623 Reconfigurable Computing 3 cr.
A course on reconfigurable computing systems and applications. Contemporary FPGA architecture. FPGA design flows and tools. Hardware/software partitioning. Host, memory, and peripheral interfaces. Hardware accelerators. Classical and emerging applications. Students work on a set of design assignments and design/research projects using appropriate FPGA development boards and tools. Prerequisite: EECE 321.

EECE 425/625 Embedded and IoT Systems 3 cr.
An introduction to the basic building blocks and technologies used to design contemporary embedded and IoT systems. Topics include microcontroller architecture and programming; peripheral device controllers (GPIO; timers/counters; interrupts); serial interfaces (UART; SPI; I2C); device networking; pulse-width modulation; analog/digital conversion; real-time operating systems; and edge intelligence. Students work on a sequence of lab assignments and a major design or research project using appropriate microcontroller development boards and tools. Prerequisite: EECE 321.

EECE 427/627 Embedded Machine Learning 3 cr.
An introduction to designing and deploying machine learning models on resource-constrained embedded devices. Review of ML fundamentals and embedded device hardware; embedded ML tools and frameworks; model training and conversion; model pruning, quantization, and quantization-aware training; applications in computer vision, audio/sound processing, and speech recognition; data collection and embedded datasets; over-the-air (OTA) model deployment and updates; advanced topics including federated learning, on-device training, and hardware acceleration. The course includes a lab where students learn to develop, optimize, and deploy embedded ML models on microcontrollers. Students also work on a course project to develop an embedded ML application. Prerequisites: EECE 425 and EECE 490.

EECE 430 Software Engineering 3 cr.
A course that teaches students modern processes and tools for working on software projects, including the design, development, testing, and deployment of software systems. They will understand and use agile development methodologies and tools, including lo-fi UI sketching, user stories, behavior-driven development, and version control for team-based development, management tools, and design patterns. The course requires the completion of a group-based real-life software project. This course is considered equivalent to CMPS 271; hence, students cannot receive credits for both EECE 430 and CMPS 271. Prerequisite: EECE 330.

EECE 430L Web, Mobile, and Application Development Lab 2 cr.
A two-credit lab course that takes the students in a journey on building and deploying software systems on several platforms including standalone desktop applications, mobile devices, application servers and web applications. The course consists of one lecture per week (1 credit) that cover tutorials followed by one lab session per week where students apply the tutorials. This is a BYOD course. The lab exercises end up with the students building a software game or a computer-aided design tool that works seamlessly across different platforms while sharing the same core business logic. Prerequisite: EECE 330.

EECE 432 Operating Systems 3 cr.
This course provides a comprehensive exploration of the fundamental principles and concepts underlying modern operating systems and systems programming. Students will delve into key topics such as processes, threads, concurrency, synchronization, CPU scheduling, deadlock prevention and detection, memory management, file systems, I/O device management, and the basics of parallel and distributed systems. Additionally, the course will address critical aspects of system security and protection mechanisms. To bridge theory with practice, the course includes hands-on programming assignments that involve working with contemporary Linux kernels. These practical exercises are designed to reinforce theoretical concepts and provide students with real-world experience in systems programming and operating system internals. By the end of the course, students will have a solid understanding of how operating systems function and the skills to develop and optimize system-level software. This course is considered equivalent to CMPS 240; hence, students cannot receive credits for both EECE 432 and CMPS 240. Prerequisite: EECE 321.

EECE 433 Database Systems 3 cr.
This course offers a comprehensive and hands-on introduction to the fundamental concepts and practices of database systems. Students will explore key topics such as database design, implementation, and administration, with a strong focus on practical skills. The curriculum covers essential areas including SQL programming, data modeling, database storage and indexing, and database design theory. Additionally, the course delves into database application development, normalization techniques, and the basics of database administration. To provide a well-rounded perspective, students will also be introduced to NoSQL databases and the foundational concepts of data warehouses. By the end of the course, students will gain the knowledge and skills necessary to design, manage, and optimize databases effectively in real-world scenarios. This course is considered equivalent to CMPS 244; hence, students cannot receive credits for both EECE 433 and CMPS 244. Prerequisite: EECE 330.

EECE 435/606 Introduction to Quantum Computing 3 cr.
This course introduces the basics of quantum information science and quantum computing. We will cover classical vs quantum bits, quantum states, quantum gates and circuits, and foundational quantum algorithms. The course will also introduce quantum communication and quantum machine learning. No prior knowledge of quantum theory or physics is required, but a solid understanding of linear algebra is necessary. Pre/corequisite: MATH 218 or MATH 219.

EECE 435L Software Tools Laboratory 1 cr.
This course introduces software tools that enable engineers to become more effective and productive at writing quality code. The students will be grouped into teams of two (or three) that each will undertake a software project guided by a set of several designed lab experiments. The project will reinforce object-oriented programming concepts, and will involve software tools that expose students to source control, documentation, debugging, build automation, testing, profiling, configuration and deployment. Students are asked to use Python to conduct their work. Prerequisite: EECE 330.

EECE 437 Software Architecture and Design Fundamentals 3 cr.
This course offers a comprehensive and hands-on introduction to the fundamental concepts and practices of database systems. Students will explore key topics such as database design, implementation, and administration, with a strong focus on practical skills. The curriculum covers essential areas including SQL programming, data modeling, database storage and indexing, and database design theory. Additionally, the course delves into database application development, normalization techniques, and the basics of database administration. To provide a well-rounded perspective, students will also be introduced to NoSQL databases and the foundational concepts of data warehouses. By the end of the course, students will gain the knowledge and skills necessary to design, manage, and optimize databases effectively in real-world scenarios. Prerequisite: EECE 330.

EECE 438 Software Engineering II 3 cr.
This course aims to develop a broad understanding of advanced concepts in software engineering including: system dependability, component-based software engineering, distributed software engineering, service-oriented software engineering, real-time software engineering, user interface design, and software management. The students will apply the learned techniques in assignments. They will work on a specific advanced topic in software engineering, prepare a report and give a short presentation on the selected topic. Prerequisite: EECE 430.

EECE 439 Cloud computing 3 cr.
This course aims to develop a broad understanding of cloud computing including: data center design, infrastructure, cloud storage technologies, types of clouds and service models, virtualization and containerization, automation and orchestration, programming models, administration, security and privacy, and applications. The students will apply the learned techniques in assignments and a team project. Prerequisite: EECE 330.

EECE 440/640 Wireless Communications 3 cr.
A course that covers the fundamentals of wireless communications with emphasis on wireless channel modeling; detection and diversity techniques; resource management and power control; OFDM and ultra-wideband systems; opportunistic communication; multiple-antenna systems; multiple-access techniques and multi-user communication; diversity-multiplexing tradeoff; precoding; emerging topics in wireless communications systems. Prerequisite: EECE 442.

EECE 442 Communication Systems 3 cr.
A laboratory course with experiments covering the following topics: AM and FM modulation and demodulation, sampling and quantization, baseband transmission, digital modulation (PSK, FSK, MSK, GMSK), digital demodulation, and inter-symbol interference. Prerequisites: EECE 340 and STAT 230 or STAT 233.

EECE 442L Communications Laboratory 1 cr.
A laboratory course with experiments covering the following topics: AM and FM modulation and demodulation, sampling and quantization, baseband transmission, digital modulation (PSK, FSK, MSK, GMSK), digital demodulation, and inter-symbol interference. Prerequisite: EECE 442.

EECE 444/644 Stochastic Processes, Detection and Estimation 3 cr.
This is a graduate-level introduction to the fundamentals of detection and estimation theory involving signal and system models in which there is some inherent randomness. The concepts that we develop are extraordinarily rich, interesting, and powerful, and form the basis for an enormous range of algorithms used in diverse applications. The material in this course constitutes a common foundation for work in the statistical signal processing, communication, and control areas. Prerequisites: STAT 230 or STAT 233 and EECE 340.

EECE 446/646 Data Communications 3 cr.
This course provides an integral view of data communication systems and their digital signal-processing solutions at the link level. The course studies contemporary techniques for signal representation (sampling, quantization, compression), signal transmission and reception (modulation, data detection, channel estimation), and error correction coding (soft and hard, code-specific and noise-centric channel decoding). Conventional signal processing techniques are compared to machine-learning-based solutions under practical multi-antenna and high-frequency wireless constraints. The techniques are studied from information-theoretic and algorithmic/architectural (complexity) perspectives, laying the foundations for analysis and design. Pre/corequisite: EECE 442.

EECE 451 Mobile Networks and Applications 3 cr.
This course covers mobile networking topics with a focus on wireless networking technologies and mobile computing applications. It addresses the following standards: Bluetooth, ZigBee, Wi-Fi, GSM (2G), UMTS (3G), and LTE (4G). It also introduces the technologies that are part of the emerging 5G networks, covers Mobile IP, and an overview of Web Services and cloud computing. The course includes a project on mobile app development that involves communication among mobile devices. Prerequisite: EECE 350.

EECE 451L Internetworking Laboratory 1 cr.
This laboratory course covers the technologies and protocols of the Internet. The experiments cover IP, ARP, ICMP, UDP, TCP, DNS, routing protocols (RIP, OSPF, BGP), network address translation (NAT), dynamic host configuration (DHCP), SNMP and IP multicast. Prerequisite: EECE 350.

EECE 454/654 Communication Networks-Modeling and Optimization 3 cr.
The course covers the modeling and optimization of communication networks with applications that span fundamental and emerging design problems. Topics include modeling network resources, performance metrics, and requirements; optimization problem formulations and solution methods for multi-hop communications, resource allocation, network planning and topology design; and emerging research problems such as drone-based cell planning, edge computing, and ultra-low latency communications. Prerequisite: EECE 350.

EECE 455/632 Cryptography and Networks Security 3 cr.
This course provides an overview of encryption and network security. The topics include: classical encryption techniques, block ciphers and the data encryption standard, finite fields, advanced encryption standard, confidentiality using symmetric encryption, public-key cryptography, key management, hash and MAC algorithms, digital signatures, authentication applications, Web security, email security and IP security. Prerequisite: senior standing.

EECE 460 Control Systems 3 cr.
This course seeks to impart in students a sound understanding of fundamental principles in control engineering based on analog technologies. The course includes: mathematical modeling of linear continuous time invariant single input-single output dynamical systems; transfer functions and state space models, performance specifications, analysis and design of closed loop analog control systems. Prerequisite: EECE 340.

EECE 460L Control Systems Laboratory 1 cr.
This course involves students in the practical implementation of concepts acquired in EECE 460 by analyzing different types of dynamical systems, designing and understanding controllers suitable to specific models, simulating system responses, and experimentally verifying the effectiveness of various control schemes. Pre/corequisite: EECE 460.

EECE 461 Instrumentation 3 cr.
A design course for complete instrumentation systems, including measurements, sensors, data acquisition and component integration. Application areas and course projects include industrial control, laboratory measurements, automation systems and the like. This course is completed with a set of laboratory experiments. Prerequisite: senior standing.

EECE 462L Industrial Control Laboratory 1 cr.
A laboratory that addresses topics related to industrial automation and process control. Experiments include Programmable Logic Controllers (PLC), Supervisory Control and Data Acquisition (SCADA), Human Machine Interface (HMI), industrial networks, machine vision, and motion control applications. Prerequisite: EECE 460 or MECH 431.

EECE 466/610 / MECH 536/651 Intelligent Control Systems 3 cr.
This course introduces students to learning-based control methods including adaptive control, reinforcement learning, and model predictive control, with a focus on their applications in controlling uncertain systems. A fundamental concept linking these methodologies is 'learning', thus the course explores the role of learning in control tasks and the various approaches used to achieve effective adaptation. Additionally, students will examine the strengths and limitations of these methods in real-time control applications. The course combines theoretical lectures with problem sets and hands-on sessions to provide both conceptual understanding and practical implementation experience. Prerequisite: EECE 460 or MECH 436, senior standing.

EECE 470/670 Power System Planning 3 cr.
Electric energy and peak demand forecasts using weather sensitive, time curve, and autoregressive models; generation reliability evaluation, loss of energy expectation, probabilistic production costing, generating capacity expansion analysis, maintenance scheduling, and planning with renewable energy sources, power flow and security analysis, optimal power flow; planning in a competitive electric power environment. Prerequisite: EECE 471.

EECE 470L Electric Machines Laboratory 1 cr.
This course covers open circuit, short circuit and load test; unbalanced loading and parallel operation of transformers; speed control and load characteristics of shunt, series and compound DC machines; induction machines: blocked rotor, no-load and loading tests; operation of single-phase induction motors; operation of a synchronous machine connected to a large external source. Prerequisite: EECE 370.

EECE 471 Fundamentals of Power Systems Analysis 3 cr.
This course covers three-phase systems, generation modeling review and generation capability curve; transformers, autotransformers, three-winding transformers and regulating transformers. Calculation of transmission line parameters, evaluation of steady state operation of transmission lines, reactive power compensation, line capability, power flow analysis using Gauss-Seidel and Newton-Raphson methods, economic load dispatch, symmetrical fault analysis. Prerequisite: EECE 370.

EECE 471L Power Systems Laboratory 1 cr.
This lab course covers various aspects of power systems: measurement of the characteristics of a transmission line and assessment of its voltage drop and losses; synchronization and operation of a generator connected to an infinite bus system; load characteristics of a synchronous motor and effect of field excitation; effect of voltage levels and load types on power transmission; load flow data preparation and system study; system analysis of symmetrical and unsymmetrical faults; transient stability. Prerequisite: EECE 471.

EECE 473 Power Electronics 3 cr.
Power Electronics (PE) drive today's the clean energy and electric mobility revolution; learn in this course about advanced switches like silicon carbide (SiC) and gallium nitride (GaN) MOSFETs that enable energy efficient systems; explore rectifiers applied in battery charging and wind turbine systems; dive into DC-DC converters powering solar PV and energy storage; investigate PWM inverters at the heart of electric vehicles and renewable energy systems, with focus on voltage control and harmonic reduction. Prerequisite: EECE 310 or EECE 312.

EECE 473L Power Electronics and Drives Laboratory 1 cr.
This lab course includes experiments to study the following: induction motor torque- speed curve and starting characteristic, induction motor speed control through a 4-quandrant drive, single phase capacitor-start induction motor, AC to DC converter, DC to DC converters; buck, boost and buck-boost regulators, DC to AC inversion, AC to AC converter. Pre/corequisite: EECE 473.

EECE 474 Electric Drives 3 cr.
A course that covers steady- state analysis of dc and poly- phase induction motors, starting, and control; AC drives: solid-state control, dc link in adjustable speed drives, voltage and frequency controls, braking and plugging, affinity laws; DC drives: rectifier and chopper drives, dynamic and regenerative braking, plugging. Stepper motors: types, operational characteristics, control algorithms, power drive configurations. Special-purpose motors. Prerequisite: EECE 370.

EECE 475 Building Management 3 cr.
The Building Management Systems course focuses on the design and execution of electrical and control systems pertaining to Buildings for industrial, commercial, utility, or residential use. The course will detail the design criteria, specifications, equipment, devices, and tools needed to size, select, wire, power, and control low voltage electrical equipment for building applications. The course covers topics about low voltage power distribution and low voltage power protection devices, cables and wires, motor and drives, solar electricity, back-up power, lighting design and calculations, small power equipment, EV charging stations and building wiring/cabling design. The course will include sections about and basic controls using elementary devices as well as computer-based systems with sensors and instruments for building applications. The material will highlight the importance of energy audit and energy efficiency to realize better power reliability, higher energy efficiency, and lower operational costs.

EECE 476 Power System Design, Control, and Protection 3 cr.
This course covers the main equipment and subsystems of a power distribution system, namely step-up and step-down transformers, HV and MV Switchgears and associated circuit breakers, network protection devices, electronic (and electromechanical) protection relays, substation and substation automation. The course includes a section about power monitoring and control along with the associated SCADA and related sensors and field devices. Prerequisite: EECE 370.

EECE 478/678 Advanced Power System Analysis 3 cr.
A course on optimal dispatch of generation, symmetrical components and unbalanced faults, transient stability, control of generation, state estimation in power systems and power system simulation. Prerequisite: EECE 471.

EECE 479/679 Energy Efficiency in the Power Sector 3 cr.
Introduction to the concept of sustainable development and its roots as an interdisciplinary vision, the framework of the 17 SDGs, with 169 targets, and the history of development, achievements and challenges facing the SDGs deployment, role of engineers in achieving sustainability, outcomes of COP28. Selected topics covered in the course include: energy conversion, generation and cogeneration, load duration curves, losses and efficiency optimization, theory and application of energy analysis techniques, energy audit: definition and types, data analysis, reporting, and recommendation. Prerequisites: EECE 210, senior standing.

EECE 480/680 Antennas for Wireless Communications 3 cr.
This course provides students with an understanding of basic principles of Antenna Analysis and Design for wireless communications. The course covers an overview of the fundamental characteristics and parameters of antennas, an overview of analytical methods used to analyze and design antennas with application to some basic antenna structures such as linear antennas, loop antennas, antenna arrays, and microstrip antennas. Prerequisite: EECE 380.

EECE 480L Electromagnetics and Radio Frequency Laboratory 1 cr.
A laboratory course with experiments on concepts of applied electromagnetics and radio frequency systems. This lab includes the demonstration of Coulomb's, Ampere's and Faraday's laws; the design and implementation of capacitors and inductors; the realization of a wireless power transfer system; the design of transmission lines and impedance matching networks; the simulation and fabrication of passive and active RF circuits, wire and planar antennas as well as a full transceiver architecture. Prerequisites: EECE 340 and EECE 380.

EECE 481 Applications of Electromagnetic Fields 3 cr.
This course covers basic concepts and methods related to time varying electromagnetic wave propagation. The course includes full analysis of Maxwell's equations, plane wave propagation, reflection and transmission in lossless and lossy media, normal and oblique incidence, waveguides, impedance matching and introduction to microwave engineering. Prerequisite: EECE 380.

EECE 482 Applied Radio Frequency Engineering 3 cr.
The course introduces fundamental design concepts of radio frequency (RF) circuits and systems along with their physical realization. The course theoretical aspect is supplemented by laboratory implementation of the designed circuits and systems. The course covers topics such as microstrip lines, network analysis, distributed impedance matching as well as electromagnetic interference and compatibility. Furthermore, the course introduces the design and development of passive and active RF circuits and systems such as filters, power dividers, directional couplers, low-noise amplifiers, power amplifiers, down conversion mixers, oscillators, multi-technology transceivers and radars. The course provides students with a design capability accompanied by hands-on experience on applied RF engineering. Prerequisite: EECE 380.

EECE 484/684 Microwave Engineering 3 cr.
This course focuses on the analysis and design of passive microwave circuits. It covers the fundamentals for radio frequency and microwave engineering. It discusses the theories of transmission lines, waveguides, impedance matching, microwave networks, scattering parameters, power dividers, directional couplers, microwave resonators and microwave filters. The course enables students to study and analyze their own microwave network using computer-aided design tools and measurement equipment. Prerequisite: EECE 380.

EECE 485/685 Radio Frequency (RF) Circuits Design 3 cr.
This course covers advanced RF circuit design principles and techniques, beginning with the behavior of passive components like high-frequency resistors, capacitors, and inductors. Students learn to design RF circuits using transmission line theory and the Smith Chart, then delve into the study of two-port networks and their representations in terms of S-parameters. The course emphasizes impedance matching, biasing, and RF transistor modeling. Various RF amplifier configurations such as low noise, high power, and broadband amplifiers are explored along with their applications. Nonlinear systems in RF oscillator and mixer circuits are discussed, as are RF switches and phase shifters. Throughout the course, students use computer-aided design tools for simulation and analysis, gaining practical skills in RF circuit design. Prerequisites: EECE 310 and EECE 380.

EECE 486/686 Radio Frequency (RF) Transceiver Design 3 cr.
This course targets the physical layer of a communication system by focusing on the interactions between the various transceiver blocks. The course addresses the design and operation of the components that reside between the signal processing unit and the antenna within the RF chain. The course also details the functional level modeling of different transceiver architectures by accounting for the gain, noise, nonlinearity, sensitivity, and dynamic range. In addition, students are exposed to recent computer-aided simulation tools and measurement techniques through a set of laboratory experiments that are tailored based on the course content. As a result, the course equips the students with theoretical and practical experience in RF transceiver design. Prerequisites: EECE 380.

EECE 487/687 Radio-Frequency Integrated Circuit (RFIC) Design 3 cr.
The course addresses the analysis and design of various Radio Frequency Integrated Circuits (RFICs) with an emphasis on specific RF blocks such as low noise amplifiers, oscillators, mixers, phase locked loops and frequency synthesizers. It also introduces the design of on-chip lumped elements and passive RF components. The course provides students with hands-on experience in the simulation of RFICs as well as the different techniques for RFIC measurements. As a result, the students will be equipped with essential theoretical and practical experience in RFIC design. Prerequisites: EECE 380 and EECE 311.

EECE 488/688 Engineering Bio-Electromagnetics 3 cr.
This course discusses the interaction between biological material and electromagnetic fields. The course introduces bio-electromagnetics along with its sub-divisions and reviews the fundamental properties of electromagnetic fields and their propagation characteristics in lossy biological tissues. The course then elaborates on the electromagnetic properties of biological tissues from a bioelectric perspective. Bio-Electromagnetism is then analyzed at DC, extremely low frequencies, radio frequencies, up to Terahertz frequencies and beyond. The concept of dosimetry and the principles of energy absorption in biological tissues are then studied along the design of electromagnetic sensors and electrodes for monitoring, reception and stimulation in the human body. The human body is then analyzed as a communication channel and as a generator of electromagnetic fields. The course is concluded with an introduction to the various electromagnetic simulation tools and the corresponding measurement techniques. Prerequisites: EECE 380 and EECE 340.

EECE 490/690 / MECH 534/658 Introduction to Machine Learning 3 cr.
The course provides an introduction to machine learning theory and algorithms which learn from experience to predict or control yet to be seen instances. The course discusses the intuition and the theory of some selected modern machine learning concepts as well as the practical know how to successfully apply them to new problems. It covers topics in supervised learning such as parametric /non-parametric, generative/discriminative algorithms for classification and regression and in unsupervised learning for clustering, dimensionality reduction and reinforcement learning. The course also includes case studies and applications so that students can gain practice on regularization, model selection, parameter estimation, support vector machines, neural networks, and deep learning. For the graduate version of the course, the students are required to conduct a research project which constitutes a significant component of the course This course is considered equivalent to CMPS 261; hence, students cannot receive credits for both EECE 490/690, CMPS 261 and EECE 667. Prerequisites: EECE 330, MATH 218 or MATH 219, and STAT 230 or STAT 233.

EECE 491/691 Digital Signal Processing 3 cr.
Digital Signal Processing (DSP) is at the heart of almost all modern technology. This course introduces the fundamentals of DSP systems, including properties of discrete-time linear systems, digital filter design, sampling and reconstruction, A/D and D/A conversion, quantization, discrete-time Fourier analysis, spectral analysis, sample-rate conversion, FFT and fast convolution, filter structures and realizations, and multirate DSP and filter banks. The course also discusses applications of DSP in areas such as speech/audio processing and includes a project to implement one such application. Prerequisite: EECE 340.

EECE 499 Undergraduate Research 3 cr.
This course requires participation, under the supervision of a faculty member, in a research project. Before registering, students must create a proposal regarding the nature of the research, the specific goals of the research and the desired final report outcome; this proposal must be submitted to and approved by the supervising faculty member and the department before registering. Prerequisites: Completion of 65 required credits in the major and a cumulative GPA of 3.3 or above.

EECE 500 Approved Experience 6 cr.; 1 b.
This is an eight-week professional training course in electrical and computer engineering. (Students who register FEAA 500 cannot register EECE 500.)

EECE 501/ VIPP 501 Final Year Project I 3 cr.
A supervised project in groups of normally three students aimed at providing practical experience in some aspects of computer, communications, and electrical engineering. Students are expected to define the project, state its objectives, complete a literature survey, set project specifications, and select a design method. They are also expected to do some preliminary modeling and analysis, and acquire the necessary material needed for the completion of the project in the spring term. A professional report and oral presentation are also required. Prerequisite: EECE 410L or EECE 430L.

EECE 502 / VIPP 502 Final Year Project II 3 cr.
This is a continuation of EECE 501. Students are asked to deliver a product that has passed through the design, analysis, testing and evaluation stages. The course also requires the production of a professional report that includes a description of the design process, implementation and testing, verification and validation and a critical appraisal of the project. An oral presentation and poster are also project deliverables. Prerequisite: EECE 501.

EECE 503 Special Topics in ECE 3 cr.
Special Topics in ECE

EECE 505/FEAA 502 Final Year Project Accelerator II 3 cr.
This course is part 2 of a two-course sequence that provides selected Final-Year Project (FYP) students with the knowledge, tools, and mentorship needed to transform their technical FYP into a viable business by the time they graduate. Topics covered include value proposition design, business modeling, pricing, go-to-market strategies, startup finance and unit economics, IP and legal aspects, market sizing and competitive analysis, branding, and launch planning. Students will pitch their startup to investors at the end of the program. The course is offered annually in the spring term. Prerequisite: FEAA 501.

EECE 560/MECH 530 Mechatronics 3 cr.
A course that discusses mechatronics; data; numbering systems, architecture of the 8-bit Motorola MC68HC11 microcontroller, assembly language programming, A/D and D/A conversion; parallel I/O programmable timer operation, interfacing sensors and actuators, applications; a team project on design and implementation of a mechatronic system. Prerequisites: EECE 312, and MECH 430 or EECE 461.

EECE 603 Biomedical Signal and Image Processing 3 cr.
This course introduces the fundamentals of digital signal and image processing as implemented in biomedical applications. It provides a concise treatment of the tools utilized to describe deterministic and random signals as the basis in analyzing biological signals. Such tools include data acquisition and imaging, denoising and filtering, feature extraction, and modeling. The course is very tightly coupled with a practical component as it looks at and assigns laboratory projects on the auditory system, speech generation, electrocardiogram, neuronal activity, and medical imaging. Pre/corequisite: EECE 340 and STAT 230 or STAT 233.

EECE 606/435 Introduction to Quantum Computing 3 cr.
This course introduces the basics of quantum information science and quantum computing. We will cover classical vs quantum bits, quantum states, quantum gates and circuits, and foundational quantum algorithms. The course will also introduce quantum communication and quantum machine learning. No prior knowledge of quantum theory or physics is required, but a solid understanding of linear algebra is necessary. Pre or corequisite: MATH 218 or MATH 219.

EECE 607/407 Quantum Communication Networks 3 cr.
This course provides a deep dive into quantum communications, quantum networks, and the emerging quantum Internet. Starting with the basics of quantum information, the course explores the building blocks of quantum communication networks, including single-photon and entanglement generation sources, quantum channels (free-space optical and optical fiber), quantum noise, and decoherence. Advanced topics include quantum memory, quantum switches, quantum repeaters, and quantum detectors. We will also cover distributed quantum sensing and machine learning applications over the quantum Internet, along with secure quantum communication protocols like quantum key distribution and the necessary process of entanglement distribution over the quantum Internet. Finally, the course will cover advanced techniques to enable scalable quantum communications including entanglement swapping, entanglement distillation, and quantum error correction. In achieving these goals, the course will include an introduction to state-of-the-art quantum network simulators, like Net Squid, where students will get a chance to design and simulate hybrid quantum-classical communication networks and evaluate their performance. A solid understanding of linear algebra is necessary, in addition to a good understanding of communication theory. Prerequisites: MATH 218/219 and STAT 230/233.

EECE 608 Trustworthy machine learning 3 cr.
This course provides an introduction to trustworthy machine learning and AI. With the increasing use of predictive machine learning, trustworthiness of the models is becoming more of a concern. This course will cover the main aspects of trustworthy machine learning. Those are: the privacy of the user data used in the model, which could include confidential and sensitive information, the fairness of the model towards all groups/individuals, the robustness of the model to attacks, the transparency of the model, and the explainability of the model. Students will learn how to reliably build trustworthy machine learning models by understanding machine learning system vulnerabilities and possible ways to defend against them. Prerequisites: EECE 230, EECE 490, and STAT 230/233.

EECE 610/466 MECH 651/536 Intelligent Control Systems 3 cr.
This course introduces students to learning-based control methods including adaptive control, reinforcement learning, and model predictive control, with a focus on their applications in controlling uncertain systems. A fundamental concept linking these methodologies is 'learning', thus the course explores the role of learning in control tasks and the various approaches used to achieve effective adaptation. Additionally, students will examine the strengths and limitations of these methods in real-time control applications. The course combines theoretical lectures with problem sets and hands-on sessions to provide both conceptual understanding and practical implementation experience. Prerequisite: EECE 460 or MECH 436, senior standing.

EECE 611/411 Analog Integrated Circuits 3 cr.
Technology and limitations. IC design flow. Differential structures. Voltage regulators and converters, reference, and bias circuits. Output stages. Mixed-signal circuits overview. Noise and linearity analysis and modeling. Comparators. Sample-and-hold and trans-linear circuits. Discrete-time signals. Switched-capacitor circuits. Data converter fundamentals. Nyquist-rate D/A converters. Nyquist-rate A/D converters. Oversampling converters. Phase-locked loops. This course makes extensive use of EDA tools for custom IC design. Prerequisite: EECE 311.

EECE 612/412 Digital Integrated Circuits 3 cr.
This course is an introduction to digital integrated circuits. Material will cover CMOS devices and manufacturing technology, CMOS inverters and gates, propagation delay, noise margins, power dissipation, and regenerative logic circuits. Various design styles as well as issues designers face, such as technology scaling and the impact of interconnect, are investigated. The course starts with the core digital design block, the CMOS inverter, and then various CMOS implementations are discussed. The design of more complex combinational gates such as NAND, NOR, XORs will be considered, looking at optimizations for speed, area, or power the influence of interconnect parasitics on circuit performance and approaches to cope with them are treated in detail. The course concludes with an examination of design methodologies. Spice simulation will be embedded in lectures as practical application for lectures to emphasize DC and transient analysis. Prerequisites: EECE 310 and EECE 320.

EECE 616 Advanced Digital Integrated Circuits 3 cr.
This course covers advanced concepts in circuit design for digital VLSI systems in state-of-the art integrated circuits technologies. Emphasis is on circuit design and optimization techniques targeted for high-speed circuits, low-power circuits or high-density circuits. The impact of scaling, deep submicron effects, interconnect, signal integrity, power distribution/consumption and timing on circuit design is investigated. Emerging challenges in low power/low voltage design, process variations and memory design in the nano-scale era are covered. Prerequisite: EECE 412 or EECE 612.

EECE 617 Reliability and Statistical Design 3 cr.
This course explores major aspects of statistical design methodologies with particular emphasis on electrical and computer engineering problems. It covers various topics in the domain of reliability, yield estimation, variance reduction methods for purposes of extreme statistics and rare fail event estimation, modeling and optimization. Case studies will be provided to analyze manufacturability challenges of advanced circuits and implications on low power design. Prerequisite: senior standing.

EECE 621 Advanced Computer Architecture 3 cr.
A course on the principles, techniques, and trade-offs used in designing modern processor core architectures. Topics include benchmarking and performance evaluation; hardware instruction level parallelism techniques (pipelining, superscalar, out-of-order execution, branch prediction); software instruction level parallelism techniques (loop unrolling, software pipelining, predicated execution, EPIC architecture); virtual memory and high-performance memory systems; domain-specific architectures. Prerequisite: EECE 421.

EECE 622 VLSI for Communications and Signal Processing 3 cr.
This course introduces concepts in the design and implementation of digital signal processing systems using integrated circuits. Emphasis is on the architectural exploration, design, and optimization of signal processing systems for communications. Algorithm, architecture, and circuit design techniques are introduced that enable joint optimization across algorithmic, architectural, and circuit domains. A key component of the course is a project in which students investigate problems in the design and implementation of low-power and high-performance communication systems. Prerequisite: senior or graduate standing.

EECE 623/423 Reconfigurable Computing 3 cr.
A course on reconfigurable computing systems and applications; Contemporary FPGA architecture. FPGA design flows and tools. Hardware/software partitioning. Host, memory, and peripheral interfaces. Hardware accelerators. Classical and emerging applications. Students work on a set of design assignments and design/research projects using appropriate FPGA development boards and tools. Prerequisite: EECE 321.

EECE 625/425 Embedded and IoT Systems 3 cr.
An introduction to the basic building blocks and technologies used to design contemporary embedded and IoT systems. Topics include microcontroller architecture and programming; peripheral device controllers (GPIO; timers/counters; interrupts); serial interfaces (UART; SPI; I2C); device networking; pulse-width modulation; analog/digital conversion; real-time operating systems; and edge intelligence. Students work on a sequence of lab assignments and a major design or research project using appropriate microcontroller development boards and tools. Prerequisite: EECE 321.

EECE 626 Hardware Accelerators for Machine Learning 3 cr.
This course provides an in-depth coverage of architectural techniques used to design accelerators for training and inference in machine learning systems, with focus on recent advances towards enabling efficient processing of DNNs. It provides an overview of DNNs, discusses various hardware platforms and architectures that support DNNs, and highlights key trends in reducing the computational cost of DNNs via hardware design changes only or through joint hardware design and DNN algorithm optimizations. It also covers various development tools that enable students to quickly get started in this field and highlights important benchmarking metrics and design considerations to be used for evaluating a plethora of DNN hardware design options. Case studies include Google's TPU, Apple's Neural Engine, Intel's Nervana processor, and ARM's Project Trillium. The course involves a term project that focuses on developing architectures for hardware ML accelerators. Prerequisites: EECE 490 and EECE 420 or EECE 421.

EECE 627/427 Embedded Machine Learning 3 cr.
An introduction to designing and deploying machine learning models on resource-constrained embedded devices. Review of ML fundamentals and embedded device hardware; embedded ML tools and frameworks; model training and conversion; model pruning, quantization, and quantization-aware training; applications in computer vision, audio/sound processing, and speech recognition; data collection and embedded datasets; over-the-air (OTA) model deployment and updates; advanced topics including federated learning, on-device training, and hardware acceleration. The course includes a lab where students learn to develop, optimize, and deploy embedded ML models on microcontrollers. Students also work on a course project to develop an embedded ML application. Prerequisites: EECE 425/625 and EECE 490/690.

EECE 632/455 Cryptography and Networks Security 3 cr.
This course provides an overview of encryption and network security. The topics include: classical encryption techniques, block ciphers and the data encryption standard, finite fields, advanced encryption standard, confidentiality using symmetric encryption, public-key cryptography, key management, hash and MAC algorithms, digital signatures, authentication applications, web security, email security and IP security. Prerequisite: senior standing.

EECE 634 Introduction to Computational Arabic 3 cr.
The course concerns basic computational methods and techniques leveraged for automating the understanding and generation of text in natural languages. The methods include representation in strings, text algorithms, distance algorithms, language models, inversed indices, vector semantics. The course will also cover applying naïve Bayes, logistic regression, hidden Markov models, and neural networks for text processing. Applications and case studies include stemming, lemmatization, part of speech tagging, information retrieval, question answering, text classification, social network models, chatbots, machine translation, genomic sequence extraction, and word meaning extraction. Prerequisite: EECE 330.

EECE 635 Theoretical Foundations of Security and Privacy 3 cr.
This course provides a rigorous framework to study security and privacy using suitable mathematical models. Such models enable the assessment of the security/privacy guarantees of a given system, including communication and computing systems and databases. In particular, this course covers both computational and information-theoretic notions of security and privacy. Students learn various adversarial models and their corresponding information theoretic measures, in addition to basic cryptographic principles and protocols. Topics include: the Shannon cipher system, one-time pads and perfect secrecy, semantic security and the RSA algorithm, equivocation, and guessing entropy (and other measures). A particular focus is given to the notion of differential privacy and its applications. Prerequisites: EECE 330 and STAT 230 or STAT 233.

EECE 636 Automated reasoning 3 cr.
This course introduces automated reasoning basics, techniques, and applications. It covers both logical and probabilistic approaches and offers a perspective on how automated reasoning algorithms are at heart of the sophisticated artificial intelligence and machine learning engines. Topics include foundations on logic and probability, backtracking strategies and satisfiability solving, construction and querying of probabilistic reasoning structures such as Bayesian networks, temporal reasoning, and classes of reasoning tasks, reductions, and applications. Prerequisite: EECE 330.

EECE 637 Advanced Programming Practice 3 cr.
This course is an advanced course on programming practices with a focus on verification. The course introduces programming tools and techniques that make individual engineers more effective and productive and help them develop quality code. Teams will work in Agile and extreme programming environments with a focus on design by contract. They will use formal specifications, design patterns and aspect-oriented programming. Projects will use tools for code control, building, configuration, language recognition, dynamic documentation, fast prototyping, refinement, coverage, automated and manual debugging, and dynamic and static verification. Prerequisite: EECE 330.

EECE 640/440 Wireless Communications 3 cr.
A course that covers the fundamentals of wireless communications with emphasis on wireless channel modeling; detection and diversity techniques; resource management and power control; OFDM and ultra-wideband systems; opportunistic communication; multiple-antenna systems; multiple-access techniques and multi-user communication; diversity-multiplexing tradeoff; precoding; emerging topics in wireless communications systems. Prerequisite: EECE 442.

EECE 641 Information Theory 3 cr.
In this course students study data transmission through introducing the field of information theory. The theory is introduced in a gradual fashion and students study its applications to communications theory, computer science, statistics, and probability theory. Covering all the essential topics in information theory, students are introduced to basic quantities of entropy, relative entropy, and mutual information to show how they arise as natural answers to questions of data compression, channel capacity, rate distortion and large deviation theory. Prerequisite: STAT 230 or STAT 233 or EECE 442.

EECE 642 Introduction to Coding Theory 3 cr.
This course introduces the theory of error-correcting codes with a focus on the asymptotic, algebraic, and algorithmic aspects. Topics include: Background material from combinatorics, probability, and algebra; Shannon's coding theorem; linear codes; coding bounds; classical algebraic codes: Hamming and Hadamard Codes, Reed-Solomon codes and Justesen codes, and Decoding algorithms. Codes from graphs: Low Density Parity Check Codes, Expander Codes, Explicit constructions, and Decoding algorithms. A course on abstract algebra is not a prerequisite. The needed algebra background will be covered. Prerequisite: senior standing.

EECE 644/444 Stochastic Processes, Detection, and Estimation 3 cr.
This is a graduate-level introduction to the fundamentals of detection and estimation theory involving signal and system models in which there is some inherent randomness. The concepts that we develop are extraordinarily rich, interesting, and powerful, and form the basis for an enormous range of algorithms used in diverse applications. The material in this course constitutes a common foundation for work in the statistical signal processing, communication, and control areas. Prerequisites: STAT 230 or STAT 233 and EECE 340.

EECE 646/446 Data Communications 3 cr.
This course provides an integral view of data communication systems and their digital signal-processing solutions at the link level. The course studies contemporary techniques for signal representation (sampling, quantization, compression), signal transmission and reception (modulation, data detection, channel estimation), and error correction coding (soft and hard, code-specific and noise-centric channel decoding). Conventional signal processing techniques are compared to machine-learning-based solutions under practical multi-antenna and high-frequency wireless constraints. The techniques are studied from information-theoretic and algorithmic/architectural (complexity) perspectives, laying the foundations for analysis and design. Pre/corequisite: EECE 442.

EECE 648/MECH 691/ENMG 628 Convex Optimization 3 cr.
Advanced course that covers topics such as convex sets, convex functions, convex optimization problems, scalarization for vector optimization, duality theory, optimality conditions. Example problems include least-squares, maximum likelihood estimation, minimax, and extremal volume problems. Prerequisite: Math 218.

EECE 649 The Art and Science of Thick Tails 3 cr.
This course examines the theory and application of thick-tailed statistical models, focusing on their role in various learning and estimation problems from both mathematical and practical perspectives. In contrast to standard Gaussian techniques, this course introduces the fundamentals of thick tails through examples taken from the real world. We further explore the statistical implications of thick tails in real-life applications in engineering and in the financial sector. Concepts such as stability, Central Limit Theorems, domain of attractions, and law of large and medium numbers are explained. The course also discusses the inadequacy of standard statistical tools and techniques under thick tails in typical learning problems such as linear regression, classification, and dimensionality reduction. The course includes a project in which students have to deal with data sampled from a thick-tailed distribution and compare Gaussian to robust methods within a specific context related to their discipline. Prerequisites: MATH 201 and STAT 230.

EECE 651 Internet Engineering 3 cr.
A course that provides in-depth coverage of Internet architecture, Internet protocols and routing; discusses recent developments on the Internet such as IPv6, switching and mobility; and gives a detailed study of TCP. This course is considered equivalent to CMPS 342; hence, students cannot receive credits for both EECE 651 and CMPS 342. Prerequisite: EECE 350.

EECE 653 Multimedia and Networking 3 cr.
This course covers topics in multimedia such as system requirements, performance requirements, representation, and compression. Multimedia networking is emphasized by discussing multicasting, streaming, multimedia networking protocols and quality of service-based traffic management protocols. Other topics covered include synchronization, VoIP, and Internet2. Multimedia networking applications are designed and implemented as student projects. Prerequisite: EECE 350.

EECE 654/454 Communication Networks-Modeling and Optimization 3 cr.
The course covers the modeling and optimization of communication networks with applications that span fundamental and emerging design problems. Topics include modeling network resources, performance metrics, and requirements; optimization problem formulations and solution methods for multi-hop communications, resource allocation, network planning and topology design; and emerging research problems such as drone-based cell planning, edge computing, and ultra-low latency communications. Prerequisite: EECE 350.

EECE 655 Internet Security 3 cr.
The course covers topics in Internet security. The course discusses security threats, vulnerabilities of protocols and the different types of attacks. Preventive and defensive mechanisms are covered, such as: e-mail security, web security, IP security, network management security, wireless security, intrusion detection techniques, firewalls, VPNs and tracing the source of attacks. Student projects will be composed of implementation, simulation, and research components. Students cannot receive credits for both EECE 655 and CMPS 243.Prerequisite: EECE 350.

EECE 655L Network and Computer Security Laboratory 1 cr.
A laboratory course that addresses advanced network and computer security topics. Experiments include execution of attacks, setup of intrusion detection and prevention, securing computers and wired and wireless networks, and digital forensics. Prerequisite: EECE 350.

EECE 657 Wireless Security 3 cr.
A course that covers wireless network security; security challenges in wireless networks; security problems facing existing and upcoming wireless networks; security in naming, addressing, neighbor discovery and routing; and trust and privacy. Prerequisites: EECE 350 and EECE 455 or EECE 632.

EECE 660/MECH 653 System Analysis and Design 3 cr.
A course that outlines state-space models of discrete and continuous, linear, and nonlinear systems; controllability; observability; minimality; Eigenvector and transforms analysis of linear time invariant multi-input multi-output systems; pole shifting; computer control; design of controllers and observers. Prerequisite: EECE 460 or MECH 436.

EECE 661/MECH 641 Robotics 3 cr.
A course covering the fundamentals of robotics, emphasizing recent advancements. The curriculum encompasses key topics such as robot architecture, mechanics of robots, kinematics, dynamics, trajectory planning, and control of end effector motion. The scope extends beyond serial manipulators to include various architectures like parallel and legged robots. The hands-on lab involves programming and using robotic middleware for robot coordination and control. Engaging projects are an integral part of the course, providing opportunities to apply learned concepts in real-world scenarios, including the coordination and control of diverse types of robots in different tasks. Pre/corequisite: EECE 460 or MECH 436.

EECE 662/MECH 655 Optimal Control 3 cr.
A course on optimization theory and performance measures, calculus of variations, the maximum principle, dynamic programming, numerical techniques, LQR control systems. Prerequisite: senior standing.

EECE 665/MECH 654 Adaptive Control 3 cr.
A course that includes the control of partially known systems; analysis and design of adaptive control systems; self-tuning regulators; model reference adaptive control of uncertain dynamic systems; typical applications. Prerequisite: EECE 460 or MECH 436.

EECE 666/MECH 659 Aerial Robotics 3 cr.
This course provides a comprehensive understanding of aerial robotics, focusing on the design, control, and application of unmanned aerial vehicles (UAVs). Students will gain hands-on experience with UAV systems, delve into advanced control algorithms, and explore real-world applications of aerial robotics. The technology is set to have a profound impact on society from delivering packages to watering crops and inspecting and repairing building structures etc. This course will introduce the topic of aerial robotics and provide the foundations to be skilled in their design and control, as well as operational aspects such as ethical & legal considerations. Prerequisites: EECE460 or MECH 436, PHYS 210 and PHYS 210L or MECH 420, EECE 320 or MECH 201, EECE 230, MATH 202.

EECE 667 Pattern Recognition 3 cr.
The course provides an overview of algorithms used in machine learning. The course discusses modern concepts for model selection and parameter estimation, decision- making and statistical learning. Special attention will be given to regression and classification for supervised mode of learning. Students will be assigned typical machine learning problems to investigate as projects. Prerequisite: senior standing.

EECE 668 Game Theory and Decision-Making 3 cr.
Game theory provides a set of tools, approaches, and perspectives on decision making to mimic the human elements of decision making that is best described by strategy, coercion and cooperation. This course offers an introduction to fundamentals of game theory and decision making with a special emphasis on the foundations of the mathematical background. Topics covered include: games of skills, game of chance, cooperative, mixed motive, zero sum, coalition and repeated games. Students will be assigned real-world examples of game theory to investigate as projects. Prerequisite: senior standing.

EECE 669/MECH 648 Nonlinear Systems: Analysis, Stability and Control 3 cr.
Introduction to the theory of systems of coupled, nonlinear, time-varying ordinary differential equations. Topics include existence and uniqueness of solutions, stability of equilibria, nonlinear stability theory, Lyapunov analysis, Barbalat's lemma, input-to-state stability, input-output stability, nonlinear control design techniques, feedback linearization, backstepping, and sliding mode control. Prerequisite: EECE 460 or MECH 436.

EECE 670/470 Power System Planning 3 cr.
Electric energy and peak demand forecasts using weather sensitive, time curve, and autoregressive models; generation reliability evaluation, loss of energy expectation, probabilistic production costing, generating capacity expansion analysis, maintenance scheduling, and planning with renewable energy sources, power flow and security analysis, optimal power flow; planning in a competitive electric power environment. Prerequisite: EECE 471.

EECE 671 Environmental Aspects of Energy Systems 3 cr.
A course that examines world energy resources and classifications; sources and effects of air pollution; air quality modeling, Gaussian dispersion models for pollution estimation; motor vehicle emissions and noise pollution; environmental impacts of electricity generation, pollution control systems, electromagnetic radiation, production and impacts in high-voltage applications; environmental impact assessment; basic concepts. Prerequisite: senior standing.

EECE 674 Energy Storage and Sustainable Systems 3 cr.
The course covers the principles of sustainable energy systems, solar radiation, solar thermal applications, the Stirling engine, fuel cells and the hydrogen cycle. Various energy storage technologies are also investigated, e.g., thermal storage, compressed air, flywheels, batteries, and ultra-capacitors. The operation principles of each application will be discussed, its current developments and future trends, and students will design an energy storage solution for a selected application. Prerequisites: EECE 230, EECE 310, and PHYS 210.

EECE 675 PV and Wind Electric Energy Systems 3 cr.
This course seeks to impart in students a sound understanding of photovoltaic (PV) and wind electric energy systems in terms of their physics, design, technology, and operation. Models and characteristics of autonomous and grid connected systems. Economics, optimization techniques and feasibility studies of PV and wind electric energy systems. Prerequisite: senior standing.

EECE 677 Electric Power System Stability and Control 3 cr.
A course on synchronous machine modeling and simulation, response to small disturbances and voltage instability. Topics include Park's transformation, flux linkage, voltage and state-space equations, sub-transient and transient parameters, simplified models of the synchronous machine, treatment of saturation, system reference frame, small-signal stability, power system stabilizers, and bifurcation analysis. Prerequisite: EECE 678.

EECE 678/478 Advanced Power System Analysis 3 cr.
A course on optimal dispatch of generation, symmetrical components and unbalanced faults, transient stability, control of generation, state estimation in power systems and power system simulation. Prerequisite: EECE 471.

EECE 679/479 Energy Efficiency in the Power Sector 3 cr.
Introduction to the concept of sustainable development and its roots as an interdisciplinary vision, the framework of the 17 SDGs, with 169 targets, and the history of development, achievements and challenges facing the SDGs deployment, role of engineers in achieving sustainability, outcomes of COP28. Selected topics covered in the course include: energy conversion, generation and cogeneration, load duration curves, losses and efficiency optimization, theory and application of energy analysis techniques, power capability curves, energy audit: definition and types, data analysis, reporting and recommendation. Prerequisite: EECE 210, senior standing.

EECE 680/480 Antennas for Wireless Communications 3 cr.
This course provides students with an understanding of basic principles of Antenna Analysis and Design for wireless communications. The course covers an overview of the fundamental characteristics and parameters of antennas, an overview of analytical methods used to analyze and design antennas with application to some basic antenna structures such as linear antennas, loop antennas, antenna arrays and microstrip antennas. Prerequisite: EECE 380.

EECE 684/484 Microwave Engineering 3 cr.
This course focuses on the analysis and design of passive microwave circuits. It covers the fundamentals for radio frequency and microwave engineering. It discusses the theories of transmission lines, waveguides, impedance matching, microwave networks, scattering parameters, power dividers, directional couplers, microwave resonators and microwave filters. The course enables students to study and analyze their own microwave network using computer-aided design tools and measurement equipment. Prerequisite: EECE 380.

EECE 685/485 Radio Frequency (RF) Circuits Design 3 cr.
This course covers advanced RF circuit design principles and techniques, beginning with the behavior of passive components like high-frequency resistors, capacitors, and inductors. Students learn to design RF circuits using transmission line theory and the Smith Chart, then delve into the study of two-port networks and their representations in terms of S-parameters. The course emphasizes impedance matching, biasing, and RF transistor modeling. Various RF amplifier configurations such as low noise, high power, and broadband amplifiers are explored along with their applications. Nonlinear systems in RF oscillator and mixer circuits are discussed, as are RF switches and phase shifters. Throughout the course, students use computer-aided design tools for simulation and analysis, gaining practical skills in RF circuit design. Prerequisites: EECE 310 and EECE 380.

EECE 686/486 Radio-Frequency (RF) Transceiver Design 3 cr.
This course targets the physical layer of a communication system by focusing on the interactions between the various transceiver blocks. The course addresses the design and operation of the components that reside between the signal processing unit and the antenna within the RF chain. The course also details the functional level modeling of different transceiver architectures by accounting for the gain, noise, nonlinearity, sensitivity, and dynamic range. In addition, students are exposed to recent computer-aided simulation tools and measurement techniques through a set of laboratory experiments that are tailored based on the course content. As a result, the course equips the students with theoretical and practical experience in RF transceiver design. Prerequisite: EECE 380.

EECE 687/487 Radio-Frequency Integrated Circuit (RFIC) Design 3 cr.
The course addresses the analysis and design of various Radio Frequency Integrated Circuits (RFICs) with an emphasis on specific RF blocks such as low noise amplifiers, oscillators, mixers, phase locked loops and frequency synthesizers. It also introduces the design of on-chip lumped elements and passive RF components. The course provides students with hands-on experience in the simulation of RFICs as well as the different techniques for RFIC measurements. As a result, the students will be equipped with essential theoretical and practical experience in RFIC design. Prerequisites: EECE 380 and EECE 311.

EECE 688/488 Engineering Bio-Electromagnetics 3 cr.
This course discusses the interaction between biological material and electromagnetic fields. The course introduces bio-electromagnetics along with its sub-divisions and reviews the fundamental properties of electromagnetic fields and their propagation characteristics in lossy biological tissues. The course then elaborates on the electromagnetic properties of biological tissues from a bioelectric perspective. Bio-electromagnetism is then analyzed at DC, extremely low frequencies, radio frequencies, up to Terahertz frequencies and beyond. The concept of dosimetry and the principles of energy absorption in biological tissues are then studied along the design of electromagnetic sensors and electrodes for monitoring, reception, and stimulation in the human body. The human body is then analyzed as a communication channel and as a generator of electromagnetic fields. The course is concluded with an introduction to the various electromagnetic simulation tools and the corresponding measurement techniques. Prerequisites: EECE 380 and EECE 340.

EECE 690/490/ MECH 658/534 Introduction to Machine Learning 3 cr.
The course provides an introduction to machine learning theory and algorithms which learn from experience to predict or control yet to be seen instances. The course discusses the intuition and the theory of some selected modern machine learning concepts as well as the practical know how to successfully apply them to new problems. It covers topics in supervised learning such as parametric /non-parametric, generative/discriminative algorithms for classification and regression and in unsupervised learning for clustering, dimensionality reduction and reinforcement learning. The course also includes case studies and applications so that students can gain practice on regularization, model selection, parameter estimation, support vector machines, neural networks and deep learning. For the graduate version of the course, the students are required to conduct a research project which constitutes a significant component of the course. This course is considered equivalent to CMPS 261; hence, students cannot receive credits for both EECE 490/690, CMPS 261 and EECE 667. Prerequisites: EECE 330, MATH 218 or MATH 219, and STAT 230 or STAT 233.

EECE 691/491 Digital Signal Processing 3 cr.
Digital Signal Processing (DSP) is at the heart of almost all modern technology. This course introduces the fundamentals of DSP systems, including properties of discrete-time linear systems, digital filter design, sampling and reconstruction, A/D and D/A conversion, quantization, discrete-time Fourier analysis, spectral analysis, sample-rate conversion, FFT and fast convolution, filter structures and realizations, and multirate DSP and filter banks. The course also discusses applications of DSP in areas such as speech/audio processing and includes a project to implement one such application. Prerequisite: senior standing.

EECE 691L Digital Signal Processing Lab 1 cr.
The EECE 691L graduate lab comprises of a set of lab experiments in C and MATLAB covering a series of real-time signal processing topics which include introductions to MATLAB and code composer studio, programming in C, assembly and linear assembly, code optimization techniques, using the BIOS and BSL, IIR and FIR filter design, aliasing and echo effects. Prerequisites: EECE 491 or EECE 691.

EECE 692/MECH 642 Computer Vision 3 cr.
An introductory course on the problems and solutions of modern computer vision. Topics covered include image acquisition, sampling and quantization; image segmentation; geometric framework for vision: single view and two-views; camera calibration; stereopsis; motion and optical flow; recognition; pose estimation in perspective images. Prerequisites: MATH 202 and EECE 230 or EECE 231.

EECE 693 Neural Networks 3 cr.
The course provides a foundation to deep learning neural networks, including an overview of deep learning methods and related applications. We will discuss deep learning methods for supervised and unsupervised tasks covering different topologies in deep neural networks such as deep feedforward networks, autoencoders, convolutional networks, generative networks, recurrent and recursive networks. We will also discuss optimized learning techniques such as stochastic gradient descent. The course will include a project that explores advances or applications in deep learning. This course is considered equivalent to CMPS 364; hence, students cannot receive credits for both EECE 693 and CMPS 364. Prerequisite: EECE 490/690.

EECE 697/MECH 646 Wheeled Mobile Robotics 3 cr.
A course that provides in-depth coverage of wheeled mobile robots. The material covers: non holonomy and integrability of kinematic constraints. Modeling: kinematics, dynamics, and state-space representation. Nonlinear control strategies (open-loop and closed –loop). Five case studies are covered throughout the course: car-like, cart- like, omni- directional wheeled, mobile wheeled pendulums and bike-like robots. Prerequisite: senior standing.

EECE 698/MECH 650 Autonomous Mobile Robotics 2 cr.
This course is designed to provide engineering graduates and 4th year students with the opportunity to learn about autonomous mobile robotics. Topics include sensor modeling, vehicle state estimation, map-based localization, linear and nonlinear control, and simultaneous localization and mapping. Prerequisites: EECE 230, EECE 312 and Pre/corequisite: MECH 436; or Prerequisites: EECE 230 and Pre/corequisite EECE 460.

EECE 699 Topics in Artificial Intelligence 3 cr.
Many Artificial Intelligence (AI) technologies from self-driving cars to robot surgeons and video games, to name a few, are having an increasing societal impact. AI techniques involve self-learning systems that extract information from heterogeneous data sources to produce knowledge or goal-directed behavior. This course focuses on some selected topics in AI related to agent and multi-agent systems, life-long learning, and artificial life. Specifically, this course covers in the form of seminar both theoretical and technical issues in reinforcement learning, transfer learning, evolutionary approaches, quantum genetic algorithms and explainable AI. The course also has a practical project for students to explore learned concepts from a contemporary lens. Prerequisite: senior standing.

Department of Industrial Engineering and Management (IEM)

Chairperson	Maddah, Bacel
Professors	Maddah, Bacel; Salameh, Moueen
Associate Professor	Nouiehed, Maher
Assistant Professors	Abou Ibrahim, Hisham; Zahed, Karim; Olleik, Majd; Alame, Jawad
Senior Lecturers	Abou Jamra, Fadi; Nehme, Nabil; Noueihed, Nazim; Saad, Youssef; Trabulsi, Samir
Lecturers	Abboud, Jacques; Bdeir, Fadl; Dandache, Moustapha; Kalach, Mayssa; Khraibani, Rayan; Youness, Hasan
Instructors	Abdallah, Raja; Basmadjian, Garo; Gharios, Nadim; Hosn, Majd; Jaafar, Maysaa; Karam, Mario; Mattar, Maurice; Sfeir, Rana

Undergraduate Programs

The Department of Industrial Engineering and Management offers an undergraduate degree program leading to a bachelor of engineering in industrial engineering and a minor in engineering management.

Bachelor of Engineering (BE) Major: Industrial Engineering

The industrial engineering (IE) program extends over a four-year period and is offered exclusively on a daytime, on-campus basis. The program is offered in eleven terms whereby eight terms are 16- week fall/spring terms given over four years, and three terms are eight-week summer terms taken during the first three years of the program. In the summer term of the third year (Term IX), students are required to participate in a practical training program with a local, regional, or international organization. The entire program is equivalent to five academic years but is completed in four calendar years with three summer terms.

Program Mission

The mission of the industrial engineering program is to graduate students who assume leadership positions in the industrial engineering profession and excel in graduate education. Our graduates are sought to be lifelong learners that contribute to the wellbeing of Lebanon and the region.

Program Educational Objectives

Graduates of the IE program will be able to:

- Assume key roles in a range of industries that use industrial engineering, including manufacturing and service.
- Effectively participate in, coordinate, and manage diverse teams of engineers and analysts, especially in large-scale systems.
- Pursue advanced degrees in industrial engineering and other related fields at reputable regional and international universities.
- Appreciate the importance of professional ethics and actively use their knowledge and experience to the benefit of the community.

Industrial Engineering Program Learning Outcomes

Upon graduation, IE students will be able to demonstrate:

- An ability to apply knowledge of mathematics, science, and engineering to model, optimize and evaluate integrated systems of people, technology, and information.
- An ability to design and conduct experiments, as well as to analyze and interpret data.
- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- An ability to function on multidisciplinary engineering teams.
- An ability to identify, formulate and solve engineering problems and to develop integrated solutions to large-scale, sociotechnical problems through quantitative models.
- An understanding of professional and ethical responsibility.
- An ability to communicate effectively in oral and written form.
- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- Recognition of the need for, and ability to engage in, lifelong learning.
- Knowledge of contemporary issues.
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Program Requirements

The BE curriculum in industrial engineering is a four-year program (with three summers) consisting of 150 credit hours of coursework.

The IE curriculum is supported by four pillars:

a. Basic science courses
b. General education courses
c. Basic business courses
d. General engineering fundamental courses

The specific course requirements are as follows:

- **General Engineering:** CIVE 210, MECH 220, MECH 230, EECE 210, EECE 230, MECH 421
- **Basic Science Courses:** MATH 201, MATH 202, MATH 218/219, MATH 251, STAT 230, PHYS 210, PHYS 210L, CHEM 201/202, CHEM 203, BIOL 210
- **General Education:**
  Understanding Communication (9 credits): 3 credits Arabic course, ENGL 203, and ENGL 206.
  Understanding Ourselves (15 credits): 6 credits from "Societies & Individuals", 3 credits satisfied by the required ECON 211 course, and 9 credits from "Cultures & Histories". Out of these 15 credits, 3 credits must fulfill the thematic requirement: Social inequalities, and 3 credits must fulfill the thematic requirement: History of Ideas (Must be a CHLA 2xx course).
  Understanding Our Role in the World (6 credits): 3 credits course from Community Engaged Learning, and 3 credits course from Human Values (INDE 410).
- **Basic Business Courses:** MNGT 215, ACCT 210, MKTG 210
- **Engineering Fundamentals:** CIVE 210, MECH 220, MECH 230, EECE 210, EECE 230, MECH 421

The IE courses are distributed in three core areas:

a. Operations Research
b. Engineering Management
c. Production Systems

Curriculum for BE in Industrial Engineering

Term I (Fall)		**Credits**
FEAA 200	Introduction to Engineering and Architecture	3
INDE 301	Engineering Economy	3
MATH 218/219	Linear Algebra	3
MATH 201	Calculus and Analytic Geometry III	3
CIVE 210	Statics	3
		Total 15

Term II (Spring)		**Credits**
EECE 210	Electric Circuits	3
EECE 231	Introduction to programming using C++ and Matlab	3
MATH 202	Differential Equations	3
BIOL 210	Human Biology	3
ENGL 203	Academic English (Understanding Communication)	3
MECH 220	Engineering Graphics	1
		Total 16

Term III (Summer)		**Credits**
CHEM 201/202	Chemistry Course	3
ENGL 206	Technical English (Understanding Communication)	3
ECON 211	Microeconomic Theory (Societies and Individuals)	3
		Total 9

Term IV (Fall)		**Credits**
INDE 302	Operations Research I	3
INDE 411	Introduction to Project Management	3
STAT 230	Introduction to Probability and Random Variables	3
PHYS 210	Introductory Physics II	3
PHYS 210L	Introductory Physics LAB II	1
ARAB xxx	Arabic Elective (Understanding Communication)	3
		Total 16

Term V (Spring)		Credits
INDE 303	Operations Research II	3
INDE 320	Work Measurement and Methods Engineering	3
INDE 430	Statistical Quality Control	3
MECH 230	Dynamics	3
	Cultures and Histories Elective I	3
		Total 15

Term VI (Summer)		Credits
MKTG 210	Principles of Marketing	3
MATH 251	Numerical Computing	3
	Societies and Individuals Elective	3
		Total 9

Term VII (Fall)		Credits
INDE 410	Engineering Ethics (Human Values)	3
INDE 412	Engineering Entrepreneurship	3
INDE 421	Human Factors Engineering	3
INDE 504	Discrete Event Simulation	4
MNGT 215	Fundamentals of Management and Organizational Behavior	3
		Total 16

Term VIII (Spring)		Credits
INDE 402	Facilities Planning and Material Handling	3
INDE 431	Production Planning and Inventory Control	3
INDE 535	Data Analytics for Operations Research and Financial Engineering	4
MECH 422	Introduction to Manufacturing Processes	3
ACCT 210	Financial Accounting	3
		Total 16

Term IX (Summer)		Credits
INDE 500 or COOP (FEAA 500 and FEAA 500A)	Approved Experience	6

Term X (Fall)		Credits
INDE 501	Final Year Project I	3
INDE 513	Information Systems	3
CHEM 203	Chemistry Lab	2
	Technical Elective I	3
	Cultures and Histories Elective II	3
	Community Engaged Learning	3
		Total 17

Term XI (Spring)		Credits
INDE 502	Final Year Project II	3
	Technical Elective II	3
	Technical Elective III	3
	Technical Elective IV	3
	Cultures and Histories Elective III	3
		Total 15

Total Credit Hours	**150**

Pre-Approved Technical Electives

The 12-credit technical electives requirement should consist of (i) 6-9 credits from the graduate courses offered by the IEM Department, (ii) 0-3 credits from outside the IEM Department and (iii) 3 credits from sciences.

Minor in Engineering Management

The Department of Industrial Engineering and Management offers a minor in engineering management that can be pursued by undergraduate engineering and architecture students, as well as by students from related majors, starting as early as the fall term of their third year of enrollment. Only students who have a cumulative GPA of 2.3 or more are eligible to apply for the minor. To satisfy the requirements of this minor, students (GPA: 2.3 or more) must earn 18 credits of coursework from the IEM Department course offerings as follows:

- 9 credits from the undergraduate (industrial engineering) courses offered by the IEM Department, which must include INDE 301 Engineering Economy.
- 9 credits from either the undergraduate or the graduate (engineering management) courses offered by the IEM Department.
- A minimum grade of C+ is required for a course to be counted towards the fulfillment of a minor in Engineering Management. Additionally, a cumulative average of B (GPA 3.0) or above in all minor courses is required.

Course Descriptions

FEAA 200 Introduction to Engineering and Architecture 3 cr.
The course is designed to familiarize first year students with the different disciplines in engineering and architecture including: architecture, civil, mechanical, electrical, chemical, industrial and technologies used in the fields. The course takes a unique interdisciplinary approach to the field and introduces the related disciplines in the world of engineering and architecture. One key objective is to promote interdisciplinary interaction and innovative thinking. The course is organized into modules covering the different disciplines within the Maroun Semaan Faculty of Engineering and Architecture (MSFEA). The last module of the class showcases interdisciplinary projects demonstrating interactions among the different fields. The lectures explain as applicable to each discipline, through examples, notions of problem solving, design thinking, process of invention and innovation, environmental and civic responsibility, and measures of success in aesthetics and performance. The course project is a key component of the course. It is interdisciplinary in nature bringing ideas and solutions from all disciplines in engineering and architecture. Annually.

INDE 301 Engineering Economy 3 cr.
A course that covers principles, basic concepts, and methodology for making rational decisions in the design and implementation of real engineering projects; time value of money, depreciation, comparing alternatives, effect of taxes, inflation, capital financing and allocation, and decision under uncertainty. Every term. Formerly ENMG 400.

INDE 302 Operations Research I 3 cr.
A course on operation research modeling concepts, with an emphasis on linear programming; topics include: linear programming, network programming and project management. Prerequisite: MATH 218 or Math 219, or equivalent. Annually. Formerly ENMG 500.

INDE 303 Operations Research II 3 cr.
Another course on operation research modeling concepts with an emphasis on probability models and stochastic processes; topics include conditional probability, discrete and continuous time Markov chains and their application in modeling queues, inventories, and production process behavior. Prerequisite: STAT 230 or equivalent. Formerly ENMG 501. Annually.

INDE 320 Work Measurement and Methods Engineering 3 cr.
A course on system and work design concepts; time studies; performance rating and allowances; standard and pre-determined times; work methods improvement; design of manual work, equipment, tools, and work environments; line balancing; manpower determinations, job analysis and incentives; systems analysis, lean and value analysis. Prerequisite: STAT 230 or equivalent. Annually.

INDE 402 Facility Planning and Material Handling 3 cr.
Inter-relationships between facilities, process design, systematic layout procedures, computer aided layout, location analysis models, material handling analysis and concepts, warehousing storage, and retrieval systems. Prerequisites: INDE 302 and INDE 303. Annually.

INDE 410 Engineering Ethics 3 cr.
A course on engineering ethics covering responsibility in engineering; framing the moral problem; organizing principles of ethical theories; computers, individual morality, and social policy; honesty, integrity and reliability; safety, risk and liability in engineering; engineers as employees; engineers and the environment; international engineering professionalism; and future challenges. Formerly ENMG 504. Every term.

INDE 411 Introduction to Project Management 3 cr.
Introduction to project management for engineers. Conception, planning, scheduling, budgeting, leadership, management, tracking and completion of projects. Project management software is introduced and used. Annually.

INDE 412 Engineering Entrepreneurship 3 cr.
This course provides students with the tools necessary to create and grow a successful, innovative technology enterprise. Topics include evaluating market opportunities, designing profitable business models, producing a solid business plan, raising capital, addressing legal considerations, and developing a winning team. Prerequisite: INDE 301 or equivalent. Every term. Formerly ENMG 505.

INDE 421 Human Factors Engineering 3 cr.
Designing for human performance effectiveness and productivity. Introducing human factors and ergonomics; Design and evaluation methods; Perception: vision and hearing; Cognition; Displays and controls; Work-space design; Biomechanics of work; Stress and workload; Safety and human error; Human-computer interaction. Prerequisite: INDE 320. Formerly ENMG 614. Annually.

INDE 430 Statistical Quality Control 3 cr.
Design of quality control systems; quality methods for establishing product specifications; process control; variables and attributes charts; acceptance sampling; operating characteristics curves; process capabilities; QC software. Prerequisite: STAT 230. Annually.

INDE 431 Production Planning and Inventory Control 3 cr.
Methods of production and inventory planning. Single-product replenishment systems. Inventory management for special classes of items and products. Multiple item and multiple location inventories. Production planning and scheduling: aggregate production planning, MRP, JIT, OPT and short-range production scheduling. Prerequisites: INDE 302 and 303. Annually.

INDE 500 Approved Experience 6 cr.; 1b
Practical training program with a local, regional, or international organization.

INDE 501 Final Year Project I 3 cr.
This is a capstone course where IE students utilize knowledge they acquired from different courses to design and develop an IE-related product or service. This is the first part of the course that spans through the final year of the student's study. Prerequisite: Completion of third year in IE requirements. Fall. Annually.

INDE 502 Final Year Project II 3 cr.
This is the second part of the IE capstone course. Prerequisite: INDE 501. Spring.

INDE 504 Discrete Event Simulation 4 cr.
System definition; model formulation, Monte-Carlo method; random number generation; discrete events; system entities and its attributes. Emphasis on analysis of systems and models of real-life problems. Lab experience with a modern discrete-event simulation package (e.g., ARENA). Prerequisite: INDE 303. Annually.

INDE 513 Information System 3 cr.
This is a course that answers the questions: What is information? How can it best be stored? What to call it? The course also covers the following topics: abstraction, interfaces, barriers, specification, documentation, relational calculus and architectural abstractions, data structures for fast data storage and retrieval, encryption, putting things on the web, data warehousing and data mining. Annually. Formerly ENMG 652.

INDE 533 Industrial Automation 3 cr.
A course that introduces students to the field of industrial automation and control. The course covers a wide range of topic covering areas of instrumentation, basic control, electrical actuators and motors, pneumatics, hydraulics, basic mechanical systems and industrial controllers. The course also introduces concepts on numeric control NC and industrial robots, in addition to brief introduction on factory business and lean manufacturing as related to automation. The course consists of a lecture component (2 cr.) and a laboratory component (1 cr.).

INDE 534 Manufacturing Systems Analysis 3 cr.
Introduction which brings together useful models and modeling approaches that address a wide variety of manufacturing system design and operation issues: assembly line, transfer lines, job shops, flexible manufacturing systems and group technology. Prerequisites: INDE 431 and INDE 402. Formerly ENMG 613. Annually.

INDE 535 Data Analytics for Operations Research and Financial Engineering 4 cr.
Students will learn to identify, evaluate, and capture analytic opportunities that create value for an organization. Basic descriptive analytics methods are reviewed utilizing specialized software (e.g. R) in analyzing large data sets. Predictive analytics techniques including clustering, classification and regression are covered in detail. Prescriptive analytics applications on utilization simulation and optimization over large data to improve business decisions are presented. Annually.

Department of Mechanical Engineering

Chairperson	Lakkis, Issam
Professors	Asmar, Daniel; Ghaddar, Nesreen; Lakkis, Issam, Moukalled, Fadl; Shihadeh, Alan
Associate Professors	Mustapha, Samir; Harb, Mohammad
Assistant Professors	Abou Jaoude, Dany; Bakarji, Joseph; Honein, Theresa; Hussein, Hussein; Itani, Wael, Kaddouh, Bilal; Talih, Soha
Instructors	Al Saidi, Abed Alkader; Balhas, Zainab; Bou Karam, Samer; Fayad, Rami; Kassis, Lina; Kfoury, Elie

Undergraduate Programs

The Department of Mechanical Engineering offers one undergraduate degree program that leads to a bachelor of engineering with a major in mechanical engineering (BE in ME) and a minor in applied energy.

Bachelor of Engineering (BE) Major: Mechanical Engineering

The mechanical engineering program extends over a four-year period and is offered exclusively on a daytime, on-campus basis. The program is offered in 11 terms whereby eight terms are 16-week fall/spring terms given over four years, and three terms are eight-week summer terms taken during the first three years of the program. In the summer term of the third year (Term IX), students are required to participate in a practical training program with a local, regional, or international organization. The entire program is equivalent to five academic years but is completed in four calendar years with three summer terms.

The undergraduate program also provides students with options to pursue minors in the following:

- Applied Energy Minor
- Other minors offered by the Maroun Semaan Faculty of Engineering and Architecture, Faculty of Arts and Sciences, and the Suliman S. Olayan School of Business

Program Mission

The mechanical engineering faculty members have agreed that the undergraduate program mission is as follows:

The undergraduate program in mechanical engineering seeks to empower students to pursue successful careers and to create a learning environment in which they can develop their creative and critical thinking skills, grow into lifelong learners in light of ever-increasing challenges of modern technology, and commit to the ethical and professional responsibilities required in their calling at the global level while focusing on the needs of Lebanon and the region.

Program Educational Objectives

The program is based on the following educational objectives that were approved by the mechanical engineering faculty members on May 27, 2010:

Our graduates will be able to advance successfully in their careers as reflected in continued employment, job satisfaction, leadership responsibilities and professional recognition.

Our graduates will be able to succeed in graduate studies as reflected in admission to highly ranked programs, timely completion of degree requirements and recognition by competitive fellowships and other awards.

Program Requirements

The undergraduate curriculum for the degree of bachelor of engineering (BE), major: mechanical engineering is a five-year program. It consists of 180 term credit hours of coursework of which 30 credits are completed in the freshman year while the students are enrolled in the Faculty of Arts and Sciences and 150 credits are completed in four years while the students are enrolled in the Maroun Semaan Faculty of Engineering and Architecture. Students admitted at the sophomore level will be required to complete 150 credits in four years to earn the degree as outlined here:

- **General Engineering:** FEAA 200, CIVE 210, EECE 210, EECE 230, EECE 312, EECE 312L, INDE 301
- **Mathematics:** MATH 201, MATH 202, MATH 212, MATH 218/219, MATH 251, STAT 230
- **Sciences:** PHYS 211, PHYS 211L, CHEM 202, and one biology elective (BIOL 201 level or above, except BIOL 209), or FEAA 300
- **General Education:**
  Understanding Communication (9 credits): 3 credits Arabic course, ENGL 203, and ENGL 206
  Understanding Ourselves (15 credits): 6 credits from “Societies & Individuals” and 9 credits from “Cultures & Histories”. Out of these 15 credits, 3 credits must fulfill the thematic requirement: Social inequalities, and 3 credits must fulfill the thematic requirement: History of Ideas (Must be a CHLA 2xx course).
  Understanding Our Role in the World (6 credits): 3 credits course from Community Engaged Learning, and 3 credits course from Human Values.
- **ME Core Courses:** MECH 201, MECH 230, MECH 310, MECH 314, MECH 320, MECH 332, MECH 340, MECH 341, MECH 410L, MECH 412, MECH 414, MECH 420, MECH 421, MECH 430, MECH 432, MECH 436, MECH 510, and MECH 525

- **Technical Electives:** Four courses with at least three from the selected ME track. One elective can be from outside the major (from the pre-approved list of outside technical electives)
- **Approved Experience:** MECH 500 or CO-OP (FEAA 500 and FEAA 500A)
- **Final Year Project:** MECH 501 and MECH 502 or VIPP 501 and VIPP 502

Curriculum for BE in Mechanical Engineering

Term I (Fall)		Credits
MATH 201	Calculus and Analytic Geometry III	3
MECH 201	Computer Aided Drawing and Design (CADD)Introduction to Engineering and Architecture	3
EECE 230	Intro to Computation and Programming	3
CIVE 210	Statics	3
PHYS 211	Electricity and Magnetism	3
PHYS 211L	Electricity and Magnetism Laboratory	1
		Total 16

Term II (Spring)		Credits
EECE 210	Electric Circuits	3
FEAA 200	Introduction to Engineering and Architecture	3
MATH 202	Differential Equations	3
MECH 230	Dynamics	3
ENGL 203	Academic English	3
		Total 15

Term III (Summer)		Credits
MATH 218 or 219	Elementary Linear Algebra with Applications or Linear Algebra I	3
CHEM 202	Introduction to Environmental Chemistry	3
ENGL 206	Technical English	3
		Total 9

Term IV (Fall)		Credits
EECE 312	Electronics	3
EECE 312L	Circuits and Electronics Lab	1
MATH 212	Introductory Partial Differential Equations	3
MECH 310/ CHEN 214	Thermodynamics I	3
MECH 340	Engineering Materials	3
Cultures and Histories Elective		3
		Total 16

Term V (Spring)		Credits
STAT 230	Introduction to Probability and Random Variables	3
MECH 314/ CHEN 311	Introduction to Fluid Mechanics	3
MECH 320	Mechanics of Materials	3
MECH 332	Mechanics of Machines	3
MECH 341	Materials Lab	1
MECH 430	Process Instrumentation and Measurements	3
		Total 16

Term VI (Summer)		Credits
MECH 432	Dynamics System Analysis	3
Biology Elective or FEAA 300		3
Arabic Elective		3
		Total 9

Term VII (Fall)		**Credits**
MATH 251	Numerical Computing	3
MECH 410L	Thermal Fluid Laboratory	1
MECH 414	Thermodynamics II	3
MECH 420	Mechanical Design I	3
MECH 421	Manufacturing Processes I	3
Societies and Individuals Elective		3
		Total 16

Term VIII (Spring)		**Credits**
INDE 301	Engineering Economy	3
MECH 412	Heat Transfer	3
MECH 436	Control Systems	3
MECH 525	Product Design and Development	3
Societies and Individuals Elective		3
		Total 15

Term IX (Summer)		**Credits**
MECH 500/ FEAA 500	Approved Experience	6cr / 1 billing
		Total 6

Term X (Fall)		Credits
MECH 501/ VIPP 501	Final Year Project I	1
MECH 510	Design of Thermal Systems	3
Approved Human Values Course		3
Technical Elective I		3
Technical Elective II		3
Cultures and Histories Elective		3
		Total 16

Term XI (Spring)		Credits
MECH 502/ VIPP 502	Final Year Project II	4
Technical Elective III		3
Technical Elective IV		3
Community Engaged Learning		3
Cultures and Histories Elective		3
		Total 16

Total Credit Hours:	**150**

List of Pre-Approved Technical Electives

Electives Within Major:

- Any MECH technical elective with a number equal to or greater than 500
- ENST 300
- VIPP 201A, 202A, 301A, 401A

Electives Outside Major:

- **Engineering Electives:** BMEN: 600, 602, 604, 605, 606, 609, 610. CHEN: 531, 611, 614, 615, 619, 672, 673, 675, 798A. CIVE: 421, 451, 460, 552, 555, 602, 603, 610, 648, 655, 658, 659, 670. FEAA: 500A, 502, 520. INDE: 412, 513, 533. VIPP 301B, 401B.
- **Science Electives:** BIOL: 201, 202, 210, 223, 244, 246, 250, 260, 268. CHEM: 206, 208, 211, 212, 217, 218, 228, 233, 234. MATH: 210, 223, 224, 225, 227, 233, 241, 261, 271, 303, 304, 305, 306, 314, 341, 350, 351, 358. PHYS: 216, 217, 220, 222, 223, 225, 226, 228, 235, 236, 237, 249, 301, 302, 303, 305, 306, 307.
- **Other Electives:** CMPS: 257, 272, 274, 277, 281, 285, 286, 287, 288, 350, 368, 372, 373. DCSN: 200, 210. ECON: 214, 215, 217, 218, 222, 223, 226, 227, 228, 230, 232, 235, 236, 237, 239, 240, 241, 242, 243. GEOL: 202, 205, 211, 226, 227. ENST: 320, 396. MNGT: 215, 218, 220, 226, 229, 230. STAT: Any course with a number equal to or greater than 234.

Mechanical Engineering Optional Tracks

The core courses in the mechanical engineering program are offered in the following track areas:

- **Thermal and Fluid Engineering**
- **Design, Materials, and Manufacturing**
- **Mechatronics**

The students may opt for any track (thermal and fluid engineering; mechatronics; or design, materials and manufacturing) by taking at least three technical electives in the selected track. Normally one technical elective is allowed from outside the mechanical engineering major.

Tracks Requirements

Track I: Thermal and Fluid Engineering:

- **Fundamental Courses:** MECH 310/CHEN 214, MECH 314/CHEN 311, MECH 414, MECH 410L, MECH 412, MECH 501, MECH 502, MECH 510.
- **Technical Elective Courses (at least three technical electives are selected):** MECH 511, MECH 512, MECH 513, MECH 514, MECH 515, MECH 516/ MECH 616, MECH 603, MECH 604, MECH 606, MECH 607, MECH 609, MECH 663, MECH 671, MECH 672, MECH 673, MECH 677, MECH 678, MECH 679, MECH 680, MECH 682, & MECH 683.

Track II: Design, Materials, and Manufacturing:

- **Fundamental Courses:** CIVE 210, MECH 201, MECH 320, MECH 332, MECH 340, MECH 341L, MECH 420, MECH 421, MECH 501, MECH 502, MECH 525
- **Technical Elective Courses (at least three technical electives are selected):** MECH 520, MECH 521, MECH 522, MECH 532/MECH 620, MECH 540, MECH 550, MECH 615, MECH 617, MECH 622, MECH 624, MECH 625, MECH 626, MECH 627, MECH 628, MECH 630, MECH 633, MECH 634, MECH 638

Track III: Mechatronics:

- **Fundamental Courses:** EECE 210, EECE 312, EECE 312L, MECH 230, MECH 430, MECH 436, MECH 501, MECH 502
- **Technical Elective Courses (at least three technical electives are selected):** MECH 530, MECH 531, MECH 532/620, MECH 536/ MECH 651, MECH 628, MECH 631, MECH 634, MECH 641, MECH 642, MECH 643, MECH 644, MECH 645, MECH 648, MECH 650, MECH 653, MECH 654, MECH 655, MECH 656, MECH 659

Mechanical Engineering Concentration in Control and Robotics

The ME concentration in control and robotics provides a coherent academic framework between the ECE and ME departments in the areas of control, instrumentation, and robotics. This track is open to all undergraduate ME and ECE students.

Students choosing to enroll in the control and robotics concentration should satisfy the following course requirements:

- Two core courses and one laboratory in their respective departments: MECH 430, 432, 436.
- Three elective courses from either department (ECE/ME) provided they obtain the necessary prerequisites for any given course.
  - At least one course from list A (Control Theory: MECH 648/EECE669, MECH 651/EECE 610, MECH 653/EECE660, MECH 655/EECE 662, MECH 656/EECE 663, MECH 654/EECE 665, and MECH 657).
  - At least one course from list B must be chosen (Robotics: MECH 530/ EECE 530, MECH 641/EECE 661, MECH 646/EECE697, MECH 650/EECE698, and MECH 659/EECE 666).
  - One elective from either list A, B or C (List C- Technical Elective Courses: MECH 555/EECE 463, MECH 642/EECE 692, MECH 647/EECE 699, and MECH 691/EECE648/ENMG 628).

Minor in Applied Energy

The minor in applied energy is open to all MSFEA students who are interested in the energy domain and in renewable energy applications. Students seeking professional careers that will focus on energy, the environment, sustainable applications in buildings and energy systems may find this minor attractive. The minor in applied energy is administered by the Department of Mechanical Engineering.

Students who have completed at least 60 credits at the sophomore level and higher and who have a cumulative GPA of 2.3 or more may apply by completing a minor application. The minor will be indicated on the transcript of the students who complete all the requirements described below. A minimum grade of C+ is required for a course to count towards the fulfillment of the minor.

Program Structure

Students wishing to complete the minor are required to complete a minimum of 18 credits: 6 credits from the list of core courses and 12 credits from the list of elective courses.

The first are two core courses (6 credits) that provide a foundation for the understanding of energy science and technology and its economy.

The second component is a number of elective courses (12 credits), selected by the students in close consultation with their academic adviser for the applied energy minor.

Minor Requirements

- Required Courses (6 credits):
  - MECH 671, or EECE 675, or ENST 300
  - ECON 333
- Elective Courses (minimum of 12 credits): CHEN 417, CHEN 470, CHEN 471, CHEN 541, CHEN 570, CHEN 612, EECE 670, EECE 671, EECE 672, EECE 675, ENST 320, MECH 513, MECH 603, MECH 631, MECH 670, MECH 672, MECH 673, MECH 676, MECH 677, MECH 678, MECH 679, MECH 681, MECH 683

Minor in Integrated Product Design

Integrated product design is an interdisciplinary minor, located at the intersection of design, engineering, business, art, humanities, and social sciences. The minor in integrated product design is open to all AUB students who are interested in expanding their knowledge of design and obtaining a deeper understanding of the design process of goods, systems, and services from research and conceptualization, to design development and prototyping, and to marketing and branding. It is a minor for students who are inspired to become social entrepreneurs to design and develop products that can be implemented and scaled to trigger positive systemic change. Through the minor, students are exposed to a range of design skills and methods, from visualization of ideas to creative problem-solving, and transformative design thinking. They also learn to work with multidisciplinary teams on hands-on projects and in a studio environment.

Minor Requirements

Students must earn 18 credits to satisfy the requirements for the minor in integrated product design. These are distributed as follows:

1. **Foundational design skills (6 credits):** Student must select 3 credits in basic design methods courses and 3 credits in visualization courses from list 1, list of foundational courses with a focus on basic design, visualization, and prototyping: ARCH 100, ARCH 111, ARCH 112, ARCH 313, ENMG 664, GRDS 111, GRDS 141, MECH 201, MECH 421, MECH 522
2. **Core product design and development (6 credits):** Students must select 6 credits in product design and development courses from list 2: ARDS 400, BMEN 501, CHEN 571, ENMG 663, GRDS 305, INDE 502, EECE 502, CHEN 502, CIVE 402, MECH 502, MECH 510, MECH 525
3. **Thematic field electives (6 credits):** Students must select 6 credits from at least two categories:
    1. **Category A:** ARCH 068, DCSN 310, DCSN 340, EMBA 521, ENMG 654, ENMG 655, ENMG 656, ENTM 220, ENTM 230, ENTM 270, ENTM 320, FINA 211, INFO 220 / MKTG 220, INFO 227 / MKTG 227, INDE 412, MKTG 234, MKTG 311, MKTG 312
    2. **Category B:** ARCH 040, ARCH 060, ARCH 063, ARCH 069, BMEN 608 / MECH 634, CHEN 619, EECE 425 / 625, EECE 487 / 687, EECE 652, EECE 680, EECE 684, EECE 685, EECE 686, EECE 687 / 487, EECE 697 / MECH 646, EECE 698 / MECH 650, GRDS 040, GRDS 043, MECH 617, MECH 631, MECH 632, MECH 646 / EECE 697, MECH 650 / EECE 698, MECH 798C
    3. **Category C:** GRDS 062, MKTG 210, MKTG 225
    4. **Category D:** GRDS 033, GRDS 331

Students will follow AUB's regulations while pursuing the minor. University minimum requirements for a minor are as follows:

- A minimum of 15 credit hours earned on the basis of regular graded courses (not tutorial or special project type courses) is required for a minor (refer to the requirements of each faculty/school).
- At least 9 credit hours of coursework must be completed at AUB.
- Each minor must have at least 6 credits exclusive to it, 9 credits may be common with the program requirements of the major field(s) of study.
- Minor courses may not be taken on a pass/fail basis at AUB.

Course Descriptions

FEAA 200 Introduction to Engineering and Architecture 3 cr.
The course is designed to familiarize first year students with the different disciplines in engineering and architecture including: architecture, civil, mechanical, electrical, chemical, industrial and technologies used in the fields. The course takes a unique interdisciplinary approach to the field and introduces the related disciplines in the world of engineering and architecture. One key objective is to promote interdisciplinary interaction and innovative thinking. The course is organized into modules covering the different disciplines within the Maroun Semaan Faculty of Engineering and Architecture (MSFEA). The last module of the class showcases interdisciplinary projects demonstrating interactions among the different fields. The lectures explain as applicable to each discipline, through examples, notions of problem solving, design thinking, process of invention and innovation, environmental and civic responsibility, and measures of success in aesthetics and performance. The course project is a key component of the course. It is interdisciplinary in nature bringing ideas and solutions from all disciplines in engineering and architecture. Annually.

MECH 201 Computer Aided Drawing and Design (CADD) 3 cr.
The course aims to prepare mechanical engineering students to communicate through graphics, technical drawings, and design databases via Computer Aided Drawing (CAD) software (such as AutoCAD®) and 3D Computer Aided Design software (such as Creo Parametric). Orthographic projection, auxiliary views, sectional views, dimensioning and tolerancing, drawing formats. Part geometric construction. Assemblies and exploded assemblies. Parts and assemblies working drawings. Engineering symbols. CADD project.

MECH 220 Engineering Graphics 1 cr.
The course aims at preparing the future engineer to understand and create technical drawings. The course seeks to develop effective utilization of computer-aided drafting (CAD) skills in order to create engineering drawings: orthogonal projection, exploded and auxiliary views, sectioning and sectional views, dimensioning and tolerance schemes, standard drawing formats and detailing. Introduction to the use of CAD packages (AutoCAD).

MECH 230 Dynamics 3 cr.
This is a basic course in engineering mechanics covering dynamics of particles and planar rigid bodies. This course introduces Newton's law of motion, the principle of work and energy, and the principle of impulse and momentum. Diagrammatic representations of the basic laws are applied on motion of particles, systems of particles and rigid bodies. Prerequisites: CIVE 210 and MATH 201.

MECH 310/CHEN 214 Thermodynamics I 3 cr.
This course seeks to provide a methodology by which students view objects in the physical universe as systems and apply to them the basic laws of conservation of mass, energy and entropy balance. The course covers the thermodynamic state and properties of a pure substance, energy, and mass conservation, entropy and the second law. Applications involve closed setups and flow devices. Simple vapor and gas cycles applications. This course is considered equivalent to CHEN 214; hence, students cannot receive credits for both MECH 310 and CHEN 214.

MECH 314/CHEN 311 Introduction to Fluids Engineering 3 cr.
An introductory course on fluid behavior emphasizing conservation of mass, momentum, energy, and dimensional analysis; study of fluid motion in terms of the velocity field, fluid acceleration, pressure field and viscous effects; applications of Bernoulli's equation, Navier-Stokes and modeling; flow in ducts, potential flows and boundary layer flows. Prerequisite: MECH 310/CHEN 214. This course is considered equivalent to CHEN 311; hence, students cannot receive credit for both MECH 314 and CHEN 311.

MECH 320 Mechanics of Materials 3 cr.
A course that addresses the mechanical behavior of materials under different loadings such as axial, bending, transverse shear, torsion, and combined loadings. Stress and strain transformation is discussed. Deflection of beams and buckling in columns are covered. Prerequisite: CIVE 210.

MECH 332 Mechanics of Machines 3 cr.
A course that deals with the mechanization of motion, kinematics analysis of linkage mechanisms, synthesis of cam-follower mechanisms, gear terminology and types of gears, analysis and synthesis of gear trains, force analysis and introduction to linkage synthesis. Prerequisites: MECH 230 and MECH 201.

MECH 340 Engineering Materials 3 cr.
The course introduces fundamental concepts in materials science as applied to engineering materials: crystalline structures; imperfections, dislocations and strengthening mechanisms; diffusion; phase diagrams and transformations; ferrous and non-ferrous metal alloys, ceramics and polymers; structure-property relationships; material selection case studies.

MECH 341 Materials Lab 1 cr.
The course seeks to accompany and compliment MECH 340 Engineering Materials. The laboratory sessions are designed to impart a qualitative and quantitative understanding of the mechanical properties of engineering materials. The laboratory sessions will also examine topics related to the microstructure of materials. Corequisite: MECH 340.

MECH 410L Thermal/Fluid Systems Laboratory 1 cr.
A series of experiments on basic thermodynamic cycles, psychrometry, combustion and elementary fluid mechanics, with special emphasis on the use of the computer as a laboratory tool for data acquisition, reduction, analysis and report preparation. Prerequisites: MECH 310/ CHEN 214 and MECH 314/ CHEN 311.

MECH 412 Heat Transfer 3 cr.
The course seeks to impart an understanding of the fundamental concepts and laws of conduction, convection and radiation heat transfer and their application to the solution of engineering thermal problems. The course covers steady and transient heat conduction; extended surfaces; numerical simulations of conduction in one and two-dimensional problems; external and internal forced convection of laminar and turbulent flows; natural convection; heat exchanger principles; and thermal radiation, view factors and radiation exchange between diffuse and gray surfaces. The use of Matlab is integrated into homework assignments. Prerequisite: MECH 314/ CHEN 311.

MECH 414 Thermodynamics II 3 cr.
A course investigating the availability and work potential of systems; irreversibility; second law efficiency; availability; gas mixtures; air-conditioning; chemical reactions; high speed flow, nozzles, and diffusers; environmental, economic, and social implications. Prerequisite: MECH 310/ CHEN 214.

MECH 420 Mechanical Design I 3 cr.
This is an introductory course in machine design in which one learns how to determine the structural integrity of common machine components and to apply this knowledge within the context of machine design problems. Mechanical elements such as shafts, bearings, springs, welding joints and fasteners are studied with emphasis on their behavior under both static and fatigue loading. Prerequisites: MECH 320 and MECH 340.

MECH 421 Manufacturing Processes I 3 cr.
A course covering traditional material removal processes (machining and abrasion), CNC machining, as well as non-traditional material removal processes (EDM, ECM, thermal cutting, etc.); the science behind these technologies; assembly processes such as welding, brazing, soldering, and fastening are also covered. The course emphasizes process capabilities and limitations, relative cost and guidelines for process selection; and design for manufacturing guidelines. This course contains hands-on exercises in a machine shop environment. Prerequisites: MECH 320 and MECH 340.

MECH 422 Introduction to Manufacturing Processes 3 cr.
This course gives a comprehensive introduction to traditional and modern manufacturing processes used in industrial and mechanical engineering applications. It focuses on the principles, equipment, process selection, and economics considerations involved in converting raw materials into finished products. The course emphasizes process capabilities, sustainability and cost analysis. This course is restricted to Industrial Engineering Students. Prerequisite: MECH 220.

MECH 430 Process Instrumentation and Measurements 3 cr.
A course on general concepts of measurement systems; classification of sensors and sensor types; interfacing concepts; data acquisition, manipulation, transmission, and recording; introduction to LABVIEW; applications; team project on design and implementation of a measuring device. Prerequisites: PHYS 211 and EECE 312.

MECH 432 Dynamic System Analysis 3 cr.
A course introducing dynamic modeling and analysis of mechanical electrical, thermal, and fluid systems. The course integrates software to test and analyze the modeled systems. Prerequisites: EECE 210 and CIVE 210.

MECH 436 Control Systems 3 cr.
A course that teaches the fundamentals of designing classical feedback control systems. The course has a lecture and a lab component. The two components are graded separately, and students must pass both in order to pass the course. Topics covered in the lecture component include: review of modeling and dynamic system analysis, introduction to feedback systems, performance specifications, transient and steady-state response analyses, transfer functions, root locus analysis and design, frequency response analysis and design, lag/lead/lead-lag compensators, and PID controllers. In the hands-on lab component, students use MATLAB/Simulink for modeling, simulating, analyzing, and designing control systems and conduct experiments on hardware setups. Prerequisites: EECE 210, MECH 430, and MECH 432.

MECH 499 Undergraduate Research 3 cr.
This course provides undergraduate students with advanced standing the opportunity to participate in faculty-supervised research. Before registering, students must submit a proposal for approval by the supervising faculty member and the department; the proposal must describe the nature of the research, specific goals, and deliverables at the end of the term. The course may be counted once as a technical elective. Prerequisites: completion of 65 required credits in the major and a cumulative GPA of 3.3 or above.

MECH 500/ FEAA 500 Approved Experience 6 cr.; 1 b.
This is an eight-week professional training course in mechanical engineering.

MECH 501/VIPP 501 Final Year Project I 1 cr.
The aim of this course is to provide students with practical experience in some design aspects of mechanical engineering. Students, working in groups, write a literature survey of an assigned project, critically analyze its components, and develop a bill of material necessary for the completion of the project. Prerequisites: MECH 500, MECH 420, MECH 525, and MATH 251.

MECH 502/VIPP 502 Final Year Project II 4 cr.
Researched and planned in MECH 501. Prerequisite: MECH 501.

MECH 503 Special Topics in Mechanical Engineering 3 cr.
Special topics in mechanical engineering.

MECH 503A/MECH 798J Data-Driven Methods in Science and Engineering 3 cr.
This course provides a broad introduction to machine learning methods with applications in science and engineering. Topics include: supervised learning (linear/logistic regression, neural networks, support vector machines etc.), unsupervised learning (clustering, PCA, autoencoders), reinforcement learning, and learning theory (variance/bias trade-off, approximation/estimation errors, etc.). The course will emphasize engineering and scientific applications, including: control theory, nonlinear dynamics, fluid dynamics, and materials science. Recent developments in physics-informed machine learning techniques will be discussed, including: sparse identification of nonlinear dynamics (SINDy), dynamic mode decomposition (DMD), and physics-informed neural networks (PINNs). Prerequisites: MATH 201, MATH 218, STAT 230, EECE 230.

MECH 510 Design of Thermal Systems 3 cr.
The course seeks to develop in students the ability to integrate rate mechanisms (i.e., heat transfer and fluid dynamics) into thermodynamic system modeling, and analyses and provides design opportunities through open-ended problems with explicit considerations of engineering economics, optimization, environmental impact, ethical concerns, manufacturability, and sustainability. Teamwork experience and communication skills are highly stressed. Students will gain hands-on experience with the tools of investigation used for thermal and fluid systems and learn how to approach and solve problems typically encountered in engineering experimental work. Prerequisites: MECH 410L, MECH 412, and MATH 251.

MECH 511 Intermediate Fluid Mechanics 3 cr.
A course that deals with potential flow and boundary layer analysis; lift and drag; flow separation; the use of computational techniques to solve boundary layer problems; viscous internal channel flow and lubrication theory; one-dimensional compressible flow in nozzles and ducts; normal shock waves and channel flow with friction or heat transfer; fluid machinery including pumps and hydraulic turbines. Prerequisites: MECH 314/ CHEN 311 and MECH 412.

MECH 512 Internal Combustion Engines 3 cr.
A course that examines the fundamentals of internal combustion engine design and operation, with emphasis on fluid/thermal processes. Topics include analysis of the respiration, combustion and pollutant formation processes; heat transfer and friction phenomena; engine types and performance parameters; thermo-chemistry of fuel-air mixtures; use of engine cycle models for performance predictions; and social implications of motorization. Pre/corequisites: CHEM 202, MECH 414, and MECH 430.

MECH 513 Air Conditioning 3 cr.
A course on human thermal comfort and indoor air quality; solar radiation; heating and cooling load calculations in buildings; air conditioning systems; air and water distribution systems; computer-based calculations. Prerequisite: MECH 412.

MECH 514 Gas Turbines 3 cr.
A course that introduces the thermodynamic and aerodynamic theory forming the basis of gas turbine design: shaft power cycles; gas turbine cycles for aircraft propulsion; turbofan and turbojet engines; design and analysis of centrifugal and axial flow compressors and turbines. Prerequisites: MECH 314/ CHEN 311 and MECH 414.

MECH 515 Steam Turbines 3 cr.
A course that deals with impulse and reaction steam turbines, steam turbine cycles, flow of steam in nozzles, design aspects of turbines stage losses and efficiency, velocity diagrams; impulse and reaction blading velocities; nucleation, condensation and two-phase phenomena in flowing steam; boiler room and its various equipment; the complete steam power plant; governors, electric generator and power transmission lines. Pre/corequisites: MECH 314/ CHEN 311 and MECH 414.

MECH 516/ MECH 616 Aerodynamics 3 cr.
This course introduces the fundamental principles of aerodynamics, focusing on the behavior of airflow around bodies, the calculation of lift and drag using analytical and computational tools, and the application of these principles to the design and performance analysis of aircraft. The course includes both theoretical and practical components, with emphasis on understanding the physical phenomena and applying them to real-world problems. Prerequisites: MECH 314/ CHEN 311 and MECH 414.

MECH 517 Hydraulic Turbines for Power Generation 3 cr.
This course presents the principles and development of hydraulic turbines with emphasis on the techniques for formulating and solving problems. The importance of the incoming flow direction will be stressed. The Pelton, or tangential flow, turbine will be studied in detail. The course will provide a brief introduction to cavitation. Prerequisites: MECH 310/ CHEN 214 and MECH 410L.

MECH 519 Compressible Flows 3 cr.
The objective of the course is to impart an understanding of the fundamental principles of steady and unsteady one-dimensional perfect-gas flow. Students learn about the behavior of homenergic and homentropic flow, develop an understanding of normal shock waves and homenergic flow in nozzles; learn how to analyze frictional homenergic flow in a constant-area duct and frictionless diabatic flow in a constant-area duct; and learn how to draw skeleton wave diagrams of wave processes. Prerequisites: MECH 310/ CHEN 214 and MECH 314/ CHEN 311.

MECH 520 Mechanical Design II 3 cr.
A course on general concepts of measurement systems; classification of sensors and sensor types; interfacing concepts; data acquisition, manipulation, transmission, and recording; introduction to LABVIEW; applications; team project on design and implementation of a measuring device. Prerequisites: PHYS 211 and EECE 312.

MECH 521 Manufacturing Processes II 3 cr.
A course on heat treatments, deformation, phase-change, and particulate consolidation processing of metals; fabrication processing of non-metallic engineering materials such as ceramics, polymers and composites; emphasis on process capabilities and limitations, relative cost and guidelines for process selection; the behavior of materials under processing conditions; design for manufacturing guidelines. This course emphasizes hands-on training exercises. Prerequisite: MECH 340.

MECH 522 Mechanical CAD/CAE/CAM 3 cr.
The course gives students exposure to the realm of computer-aided design (CAD), computer-aided engineering (CAE) and computer-aided manufacturing (CAM). The course teaches students to harness the power of these powerful tools in the solution of various problems of mechanical engineering. The course utilizes several commercially available software packages but the emphasis is placed on Pro/Engineer. Prerequisites: MECH 320, MECH 420, and MECH 432.

MECH 525 Product Design and Development 3 cr.
Product design and development focuses on every aspect of the design process from defining a challenge to ideation, prototyping, testing, and production. A major focus will be on the development of skills to have a functional product. Further, this course is designed to broaden the student's knowledge of materials classes, properties, limitations, and application. To enhance students' learning experience, many design case studies will be presented and analyzed. This course will also guide the students to develop their designs (working individually or in groups). Prerequisites: MECH 332 and MECH 420.

MECH 530/EECE 560 Mechatronics System Design 3 cr.
A course that discusses mechatronics; data; numbering systems, architecture of the 8-bit Motorola MC68HC11 microcontroller, assembly language programming, A/D and D/A conversion; parallel I/O programmable timer operation, interfacing sensors and actuators, applications; a team project on design and implementation of a mechatronic system. Prerequisites: EECE 312, MECH 430 or EECE 461.

MECH 531 Mechanical Vibrations 3 cr.
A course on free and forced response of non-damped and damped system; damping vibration absorption; response of discrete multi-degree of freedom systems; modal analysis; vibration measurement, case studies, vibration analysis with Matlab and Simulink. Prerequisite: MECH 230.

MECH 532/ MECH 620 Intermediate Dynamics with Applications 3 cr.
This course examines the dynamics of systems of particles and rigid bodies moving in three dimensions using the Newton-Euler and Lagrange equations of motion. The equivalence between these formulations of the equations of motions and others such as the Gibbs-Appell and Kane equations is established. Topics include tensor calculus, curvilinear coordinates, Euler angles and parameters, and constraints. Applications of the material range from vibrations of multi-degree of freedom systems to robotics. Numerical simulations and animations are included. Prerequisites: MECH 230 and EECE 230. Corequisites: MATH 202 and MATH 218.

MECH 533 Electric Machines and Drives 3 cr.
This course covers the fundamentals of electromagnetic circuits, three-phase circuits, transformers: single-phase ideal and real transformers, construction and operation; fundamentals of AC machines, operation of synchronous generators; induction motors: construction and principle of operation, power, torque and efficiency expressions; AC drives: starting and speed control strategies, plugging and regenerative breaking; DC motors types and control strategies, stepper motors: types, operational characteristics, drivers configurations. Prerequisites: EECE 210 and MECH 310/ CHEN 214.

MECH 534/658 / EECE490/690 Intro to Machine Learning 3 cr.
The course provides an overview of machine learning theory and algorithms that learn from experience to predict or control yet to be seen instances. The course discusses the intuition and the theory of some selected modern machine learning concepts as well as practical know-how to successfully apply them to new problems. It covers topics in supervised learning such as parametric/ non-parametric, generative/ discriminative algorithms for classification and regression and in unsupervised learning for clustering, dimensionality reduction and reinforcement learning. The course also includes case studies and applications so that students can gain practice on regularization, model selection, parameter estimation, Bayesian networks, hidden Markov models, support vector machines, reinforcement learning, neural networks, and deep learning. Students cannot receive credit for both MATH 218 and 219. Prerequisites: MATH 218 or MATH 219, and STAT 230 or STAT 233.

MECH 535 Fluid Power Systems 3 cr.
This is a senior level undergraduate lecture course which covers the fundamentals of fluid power transmission and drive technology. Students learn about the main hydraulic and pneumatic components and their static and dynamic performance characteristics. Students learn how to read circuit diagrams and understand the principles of circuit operation. Through the use of simulation software, students will learn to design and analyze complex fluid power systems. Prerequisites: MECH 314/ CHEN 214 and MECH 436.

MECH 536/651 / EECE 466/610 Intelligent Control Systems 3 cr.
This course introduces students to learning-based control methods including adaptive control, reinforcement learning, and model predictive control, with a focus on their applications in controlling uncertain systems. A fundamental concept linking these methodologies is 'learning', thus the course explores the role of learning in control tasks and the various approaches used to achieve effective adaptation. Additionally, students will examine the strengths and limitations of these methods in real time control applications. The Course combines theoretical lectures with problem sets and hans-on sessions to provide both conceptual understanding and practical implementation experience. Pre-requisite: MECH 436 or EECE 460.

MECH 540 Selection and Properties of Materials 3 cr.
A course that reviews the mechanical behavior of materials. Topics covered include structure-property relationships in materials; continuum mechanics and tensor notation; theorems of elastic, plastic, viscoelastic behavior of materials; elements of creep, fatigue, and fracture mechanics. Prerequisite: MECH 340.

MECH 550 Computer Applications in Mechanical Engineering 3 cr.
A course dealing with the application of numerical techniques for the solution of a variety of mechanical engineering problems involving systems of linear or nonlinear algebraic equations, systems of ordinary differential equations of the initial and boundary value types, systems of ordinary differential equations, and partial differential equations of the parabolic, elliptic, and hyperbolic types. Engineering applications are introduced through a number of case study problems. Prerequisites: MATH 202 and MATH 251.

MECH 555/EECE 463 Artificial Intelligence for Control Systems 3 cr.
This is an introductory course in the evolving field of artificial intelligence (AI) for control systems. It aims at giving students a solid foundation in AI by covering basic techniques such as A* searching, reasoning under uncertainty, probabilistic reasoning over time, multi objects tracking, path planning, scheduling, communicating, perceiving, and learning as applied to control systems, robotics and manufacturing.
The group project and individual lab assignments will provide students with hands-on implementation experience of an intelligent control agent capable of basic learning. Prerequisite: EECE 460 or MECH 436.

MECH 560 Introduction to Sports Engineering 3 cr.
Introduction to Sports Engineering is a senior year technical elective course that applies principles of dynamics, biomechanics, materials science, fluid mechanics, data analytics, and optimization to the analysis and design of sports systems. Students develop mathematical models of human movement, equipment behavior, and aerodynamic performance; conduct experimental measurements and uncertainty analysis; and implement computational tools for statistical modeling, machine learning, and operational optimization. The course integrates performance enhancement, injury biomechanics, and sports operations through engineering methods such as inverse dynamics, composite analysis, impact modeling, regression, simulation, and linear programming. Emphasis is placed on quantitative analysis, computational implementation, and model validation, culminating in a comprehensive engineering design or analytics project. Prerequisite: FEAA 200.

MECH 600/CHEN 690 Reservoir Engineering 3 cr.
This course will cover both fundamental and applied reservoir engineering concepts. It aims at understanding the rock and fluid properties and how these properties interact to affect production from a hydrocarbon reservoir. From a practical standpoint, the course will focus on classical reservoir engineering, reservoir drive mechanisms, well testing and well test analysis as well as the use of reservoir simulation to assist the reservoir engineer at different stages of a hydrocarbon reservoir lifecycle.
Prerequisites: MECH 310/ CHEN 214 and CHEN 490.

MECH 602 Energy Conservation and Utilization 3 cr.
A course that deals with methods for reduction of losses and gains from a building envelope, energy conservation in cooling, heating, air-handling, and plumbing systems; and energy management programs. Prerequisites: MECH 310/CHEN 214 and MECH 412.

MECH 603 Solar Energy 3 cr.
A course discussing the fundamentals of solar radiation, collectors and concentrators, energy storage, estimation and conversion formulas for solar radiation. Prerequisite: MECH 412.

MECH 604 Refrigeration 3 cr.
A course on fundamental concepts and principles, cold storage; functions and specifications of refrigeration equipment, applications. Prerequisite: MECH 412.

MECH 606 Aerosol Dynamics 3 cr.
This course covers the physical and chemical principles that underlie the behavior of aerosols—collections of solid or liquid particles, such as clouds, smoke, and dust, suspended in gases—and the instruments used to measure them. Topics include: aerosol particle characterization; transport properties and phenomena in quiescent, laminar, and turbulent flows; gas- and particle-particle interactions; and applications to human respiratory tract deposition and atmospheric pollution. Prerequisites: MECH 314/ CHEN 311, MECH 412, and MECH 414; or consent of instructor.

MECH 607 Micro Flows Fundamentals and Applications 3 cr.
A course on the theory and applications of micro flows; the continuum hypothesis and the various flow regimes; shear and pressure driven micro flows; electrokinetically driven liquid micro flows; compressibility effects of the micro flow of gases; particulate flows in bio-applications; modeling techniques; hybrid continuum-molecular methods; reduced order modeling of micro flows in multi-physics micro flow applications; case studies in BioMEMS. Prerequisites: MECH 310/CHEN 214, MECH 314/ CHEN 311, and MECH 412, or equivalent.

MECH 608 Applied Reservoir Engineering II 3 cr.
This course introduces the advanced concepts and principles needed to analyze hydrocarbon reservoir fluid systems and defines the size and contents of petroleum accumulation. Students will learn to organize programs for collecting, recording, and analyzing data describing the advanced characteristics of individual well and reservoir performance. This course of advanced reservoir engineering topics covers a variety of topics such as: fluid flow in a porous medium; fluid distribution, fluid displacement; fractional flow equation; Buckly-Leverete equation; pressure draw-down and pressure buildup analysis; in addition to the nature and type of primary, secondary and tertiary recovery; water influx and prediction of water-flood behavior, reservoir model simulation and history matching. Prerequisite: MECH 600.

MECH 609 Experimental Methods in Fluid Dynamics 3 cr.
This is a graduate level course that introduces students to experimental methods used to measure fluid flow quantities such as pressures, forces, and velocities. The course starts with an introduction to what and why we measure, uncertainty analysis and measurement error estimation. Some basic techniques for data reduction and data post-processing are introduced. The available fluid measurement methods are surveyed briefly, with selected applications. Emphasis is on advanced optical diagnostic techniques, namely particle image velocimetry (PIV) and laser induced fluorescence (LIF). The theoretical foundations of these techniques are established and the discussion extended to practical considerations, including software and hardware components. A few laboratory sessions are incorporated into the course to supplement the lectures and make use of the instruments available in the ME department, including the open circuit wind tunnel and the PIV system. In addition to the lectures and lab sessions, there is emphasis on the available literature. Prior knowledge of the basic principles of fluid mechanics and fluid systems is required. MATLAB is needed for coursework. Prerequisite: MECH 314.

MECH 611/BMEN 611 Computational Modeling of Biomechanics 3 cr.
This course is open to engineering, science and medical students wanting a glimpse into the world of computational finite element modeling and simulation to investigate and solve biomedical problems. Students will take a journey through the processes involved in producing a computational finite element model in the biomedical field, starting at construction of model geometry from medical imaging data (CT/MRI), through to model creation, simulation and visualization using finite element analysis software (ANSYS Workbench). Students will also be exposed to a selection of experimental lab techniques in biomechanics and physiology to acquire data required for model development and validation. In pursuit of developing an appreciation for the areas covered, the course will incorporate a mix of theory, demonstrations, practice, real-world modeling applications and research seminars. Prerequisites: MATH 201 and consent of instructor.

MECH 615 Continuum Mechanics 3 cr.
The course offers a unified presentation of continuum mechanics such as fluids, elasticity, plasticity, and viscoelasticity. The general concepts and principles applicable to all continuous media are presented followed by defining equations for a particular medium. Topics include fundamentals of tensor calculus, stress, deformation and strain, general principles, constitutive equations for solids and fluids; applications. Prerequisites: MECH 320, MATH 218 (or equivalent), MATH 212 (or equivalent), or graduate level standing.

MECH 617 Smart Materials and Structures 3 cr.
This course presents the fundamentals of modeling, analysis, and design of smart materials and structures. Students will be exposed to the state of the art of smart materials and systems, spanning piezoelectrics, shape memory alloys, electroactive polymers, and fiber optics. Students will explore the application of such materials in structural systems from the aeronautic, automotive, biomedical, and nautical industry. Smart materials are a class of materials varying in chemical composition and physical state that have one or more physical or physiochemical properties that can be significantly changed by external stimuli, such as pressure, temperature, electric or magnetic field, etc. Each student will participate in a group project. Under the guidance of the professor, the student will learn to develop a proposal, do the project investigation, and prepare and carry out the technical communications (writing and oral). In any of these scenarios, the student is directly responsible for the progress and quality of the results. At the end of the term, the student is required to submit a written project report and to give a seminar presenting the aims and achievements of the project.

MECH 618 Enterprise Resource Planning (ERP) in Manufacturing Systems 3 cr.
This course will cover how today's industries can cope with the challenges induced by global competition. The course will address: challenges of today's industry; consequences of these challenges on product design and organizations; the role of the information systems, PLM, ERP and APS; and practice of PLM and ERP systems on the SAP Business Suite and Business by Design solution.

MECH 619 Quality Control in Manufacturing Systems 3 cr.
The course covers the foundations of modern methods of quality control and improvement that may be applied to manufacturing industries. It aims to introduce students to the tools and techniques of quality control used in industrial applications and develop their ability to apply the tools and techniques to develop solutions for industrial problems. Emphasis is given to the application of quality management techniques to solve industrial case problems. The course emphasizes the philosophy and fundamentals of quality control, the statistical foundations of quality control, statistical process control, acceptance sampling, and product and process design. Prerequisites: STAT 230 and MECH 421.

MECH 622 Modeling of Machining Processes and Machines 3 cr.
This course covers the principles and technology of metal machining; mechanics of orthogonal and 3D metal cutting; static deformations, forced and self-excited vibrations and chatter; and design principles of metal cutting CNC machines. Prerequisite: MECH 421.

MECH 624 Mechanics of Composite Materials 3 cr.
A course on anisotropic elasticity and laminate theory, analysis of various members of composite materials, energy methods, failure theories and micromechanics. Materials and fabrication processes are introduced. Prerequisites: MECH 320 or CIVE 310, and MECH 340; or equivalent.

MECH 625 Fatigue of Materials 3 cr.
This course covers the principles of fatigue and damage tolerance in engineering structures, including fracture mechanics and simulation of crack propagation. You will learn to assess fatigue life, design against fatigue, and validate strength justifications using both fundamentals and best practices. The program emphasizes the role of materials, manufacturing, design, and the range of operating loads in structural durability.
Practical training includes fatigue and fracture analysis with the Finite Element Method and case studies that break down the analysis process into clear steps. By the end, you will be able to identify critical areas, prevent failures, and apply advanced simulation tools to improve fatigue performance and damage tolerance in real structures. Prerequisite: MECH 320

MECH 626 Metals and Their Properties 3 cr.
A course that investigates ferrous and non-ferrous alloys; industrial equilibrium diagrams; heat treatment of metals; surface properties of metals; plastic deformation of metals; elements of fracture mechanics; process-structure-properties relations. Prerequisite: MECH 340.

MECH 627 Polymers and Their Properties 3 cr.
The course will cover selected topics in polymer structure and properties, rubber elasticity, viscoelasticity, time-temperature superposition, dynamic mechanical analysis, polymer rheology, thermoplastic polymer converting and compounding, commercial polymers, testing and characterization, and design & selection of polymer materials. The students will be exposed to hands-on fabrication methods, industrial tours, and industrial-level R&D novelty. Prerequisite: MECH 340.

MECH 628 Design of Mechanisms 3 cr.
A course involving graphical and analytical synthesis of single-and multi-loop linkage mechanisms for motion, path, and function generation through 2-3-4- and 5-precision positions; optimum synthesis of linkage mechanisms; synthesis of cam-follower mechanisms; synthesis of gear trains. Prerequisite: MECH 332.

MECH 630 Finite Element Methods in Mechanical Engineering 3 cr.
A course on the classification of machine components; displacement-based formulation; line elements and their applications in design of mechanical systems; isoparametric formulation; plane stress, plane strain, axi-symmetric, and solid elements and their applications; modeling considerations and error analysis; introduction to potential energy and Galerkin approaches; and analysis of field problems. Prerequisites: MECH 420 and MATH 251.

MECH 631 Micro Electro Mechanical Systems (MEMS) 3 cr.
A course that deals with materials for micro-sensors and micro-actuators, materials for micro-structures, microfabrication techniques and processes for micromachining, computer-aided design and development of MEMS, commercial MEMS structures and systems, packaging for MEMS, future trends, and includes a team project. Prerequisite: MECH 430.

MECH 632 Structural Health Monitoring 3 cr.
The general concepts of structural health monitoring will be introduced. The commonly used techniques to provide continuous monitoring will be discussed (vibration and ultrasonic wave-based methods). Further, determination of critical measurement types and location; data acquisition systems and instruments; and design of measurement setup will be discussed. Handling data with advanced machine learning algorithm, such as artificial neural networking and support vector machine will be introduced. Students will also be introduced to the damage detection and condition assessment process. Prerequisites: MECH 320 and MECH 430.

MECH 633 Biomechanics 3 cr.
A course on the study of biomechanical principles underlying the kinetics and kinematics of normal and abnormal human motion. Emphasis is placed on the interaction between biomechanical and physiologic factors (bone, joint, connective tissue, and muscle physiology and structure) in skeleto-motor function and the application of such in testing and practice in rehabilitation. The course is designed for senior level undergraduate/ graduate engineering students with no previous anatomy/physiology. Prerequisite: CIVE 210, MECH 320, CIVE 310, or consent of instructor.

MECH 634/BMEN 608 Biomaterial and Medical Devices 3 cr.
A course that examines the structure-property relationships for biomaterials and the medical applications of biomaterials and devices. The first part of the course focuses on the main classes of biomaterials, metal, ceramic, polymeric and composite implant materials, as well as on their interactions with the human body (biocompatibility). The second part examines the various applications of biomaterials and devices in different tissue and organ systems such as orthopedic, cardiovascular, dermatological, and dental applications. Experts from the medical community will be invited to discuss the various applications. Prerequisite: MECH 340 or consent of instructor.

MECH 635/BMEN 601 Computational Modeling of Physiological Systems 3 cr.
This course focuses on the quantitative modeling of different physiological systems. It provides students with current concepts of the mathematical modeling, and different quantitative descriptions of cellular and organ physiology. At the subcellular/cellular level, we will examine mechanisms of regulation and homeostasis. At the system level, the course will cover basic aspects of anatomical and pathophysiological features of the nervous, neural, cardiovascular, and respiratory systems. Several physiological processes are treated as case studies for increasing complexity in modeling dynamical systems. Prerequisites: MATH 202, EECE 230 or 231, or consent of instructor.

MECH 637 Micromechanics and Crystal Plasticity 3 cr.
This course covers the theoretical knowledge of the deformation process in single and polycrystalline solids with an emphasis on the role of dislocations and other types of defects on the overall mechanical properties of materials. Topics will include an introduction to crystallography, defects in crystals, fundamentals of dislocations, strengthening mechanisms, microstructures and yielding. Prerequisites: MECH 340 and MECH 320.

MECH 638 Material, Selection for Design 3 cr.
This course describes the procedures for material selection in mechanical design, in order to ensure that the most suitable materials for a given application are identified from the full range of materials available. It targets both senior undergraduate and graduate students and investigates a vast number of conventional, unconventional, and hybrid materials used in the industry, as well as their selection and design processes that are followed by new product development departments around the world. Factors such as working environment, design requirements, fabrication type, cost, recyclability, and others are covered. Additionally, simulations of stress analysis during the manufacturing and application modes are investigated. Prerequisite: MECH 340 Engineering Materials.

MECH 641/EECE 661 Robotics 3 cr.
A course covering the fundamentals of robotics, emphasizing recent advancements. The curriculum encompasses key topics such as robot architecture, mechanics of robots, kinematics, dynamics, trajectory planning, and control of end effector motion. The scope extends beyond serial manipulators to include various architectures like parallel and legged robots. The hands-on lab involves programming and using robotic middleware for robot coordination and control. Engaging projects are an integral part of the course, providing opportunities to apply learned concepts in real-world scenarios, including the coordination and control of diverse types of robots in different tasks. Corequisite: MECH 436 or EECE 460.

MECH 642/EECE 692 Computer Vision 3 cr.
An introductory course on the problems and solutions of modern computer vision. Topics covered include image acquisition, sampling and quantization; image segmentation; geometric framework for vision: single view and two-views; camera calibration; stereopsis; motion and optical flow; recognition; pose estimation in perspective images. Prerequisites: MATH 202 and EECE 230 or EECE 231.

MECH 643 Mechatronics and Intelligent Machine Engineering II 3 cr.
A course on sensors, sensor noise and sensor fusion; actuators; system models and automated computer simulation; information, perception, and cognition; planning and control; architectures, design, and development. A team project is included. Prerequisites: MECH 340 and MECH 530.

MECH 644 Modal Analysis 3 cr.
A course reviewing MDOF system vibrations, frequency response functions, damping, mobility measurement, curve fitting and modal parameter extraction, derivation of mathematical models; laboratory experiments and projects are included. Prerequisite: MECH 531.

MECH 645 Noise and Vibration Control 3 cr.
A course on fundamental concepts in noise and vibration, passive and active damping strategies, damping materials, control methods and applications. Prerequisites: MECH 230, MATH 212, and MECH 531.

MECH 646/EECE 697 Wheeled Mobile Robotics 3 cr.
A course that provides in-depth coverage of wheeled mobile robots. The material covers: non-holonomy and integrability of kinematic constraints; modeling: kinematics, dynamics, and state-space representation; and nonlinear control strategies (open-loop and closed loop). Five case studies are covered throughout the course: car-like, cart-like, omnidirectional wheeled, mobile wheeled pendulums and bike-like robots. Prerequisite: senior or graduate standing.

MECH 647 Hydraulic Servo Systems 3 cr.
A graduate lecture course which covers the fundamentals of modeling and control of hydraulic servo-systems. It provides theoretical background and practical techniques for the modeling, identification and control of hydraulic servo-systems. Classical and advanced control algorithms are discussed. The use of Matlab/Simulink and DYMOLA will be an integral part in this course. Prerequisites: MECH 314 and MECH 436, or MECH 314 and EECE 460.

MECH 648/EECE 669 Nonlinear Systems: Analysis, Stability and Control 3 cr.
Introduction to the theory of systems of coupled, nonlinear, time-varying ordinary differential equations. Topics include existence and uniqueness of solutions, stability of equilibria, nonlinear stability theory, Lyapunov analysis, Barbalat's lemma, input-to-state stability, input-output stability, nonlinear control design techniques, feedback linearization, backstepping, and sliding mode control. Prerequisite: MECH 436 or EECE 460.

MECH 650/EECE 698 Autonomous Mobile Robotics 3 cr.
This course is designed to provide engineering graduate- and fourth-year students with the opportunity to learn about autonomous mobile robotics. Topics include sensor modeling, vehicle state estimation, map-based localization, linear, and nonlinear control, and simultaneous localization and mapping. Prerequisites: EECE 230/1, EECE 312 and MECH 435; or EECE 230 and EECE 460.

MECH 653/EECE 660 System Analysis and Design 3 cr.
A course that outlines state-space models of discrete and continuous, linear and nonlinear systems; controllability; observability; minimality; Eigenvector and transforms analysis of linear time invariant multi-input multi-output systems; pole shifting; computer control; design of controllers and observers. Prerequisite: MECH 436 or EECE 460.

MECH 654/EECE 665 Adaptive Control 3 cr.
A course that includes the control of partially known systems; analysis and design of adaptive control systems; self-tuning regulators; model reference adaptive control of uncertain dynamic systems; typical applications. Prerequisite: EECE 460 or MECH 436.

MECH 655/EECE 662 Optimal Control 3 cr.
A course on optimization theory and performance measures, calculus of variations, the maximum principle, dynamic programming, numerical techniques, LQR control systems. Prerequisite: senior or graduate standing.

MECH 657 Vehicle Dynamics and Control 3 cr.
A course designed for seniors and graduate students. This course of advanced vehicle dynamics begins with whole vehicle motion, including acceleration, braking, aerodynamics, steering, rollover, and extends to vehicle component dynamics, including tire, drive train, and steering, and suspension. Automotive active safety control systems (e.g., anti-lock braking, traction control, cruise control, vehicle stability control) will be introduced. An outlook into autonomous ground vehicles, and their main components and technology enablers, will be provided at the end of the course. Prerequisite: MECH 436.

MECH 658/534 / EECE 490/690 Intro to Machine Learning 3 cr.
The course provides an overview of machine learning theory and algorithms that learn from experience to predict or control yet to be seen instances. The course discusses the intuition and the theory of some selected modern machine learning concepts as well as practical know-how to successfully apply them to new problems. It covers topics in supervised learning such as parametric/ non-parametric, generative/ discriminative algorithms for classification and regression and in unsupervised learning for clustering, dimensionality reduction and reinforcement learning. The course also includes case studies and applications so that students can gain practice on regularization, model selection, parameter estimation, Bayesian networks, hidden Markov models, support vector machines, reinforcement learning, neural networks, and deep learning. Students cannot receive credit for both MATH 218 and 219. Prerequisites: MATH 218 or MATH 219, and STAT 230 or STAT 233.

MECH 659/EECE 666 Aerial Robotics 3 cr.
This course provides a comprehensive understanding of aerial robotics, focusing on the design, control, and application of unmanned aerial vehicles (UAVs). Students will gain hands-on experience with UAV systems, delve into advanced control algorithms, and explore real-world applications of aerial robotics. The technology is set to have a profound impact on society from delivering packages to watering crops and inspecting and repairing building structures, etc. This course will introduce the topic of aerial robotics and provide the foundations to be skilled in their design and control, as well as operational aspects such as ethical & legal considerations. Prerequisites: MECH 436, MECH 201, MECH 420, EECE 230 and MATH 202 or EECE 460, EECE 320, PHYS 210, PHYS 210L, EECE 230 and MATH 202.

MECH 663 Computational Fluid Dynamics 3 cr.
A course that deals with the discretization process in fluid dynamics, numerical approaches and applications, iterative and direct matrix methods, and numerical implementation of turbulence models. Prerequisites: MECH 314 and MECH 412.

MECH 665 Unsteady Gas Flow 3 cr.
A course examining equations of unsteady continuous adiabatic multidimensional flows, unsteady continuous one-dimensional flow of a perfect gas with and without discontinuity, applications, and pressure exchangers. Prerequisite: MECH 414.

MECH 670 Laboratory for Renewable Energy in Buildings 2 cr.
A laboratory course that investigates means of reducing building energy consumption first through green building design, giving consideration to building orientation, thermal massing, wind- and buoyancy-driven flows, “urban heat island” effects, and second, by retrofitting existing buildings with energy saving materials and devices such as window films, solar water heaters and green roofs. This course is offered because in Lebanon and the region, electricity consumption for building services accounts for a major portion of national energy use and greenhouse gas emissions. Students will measure and compare effects of various designs and retrofit interventions on the thermal performance, lighting and glare, and natural ventilation of model-scale buildings; and characterize performance of devices used in green building design. Lab assignments may vary by term but will normally include mathematical modeling and experimental measurement components organized around aspects of building physics. Prerequisite: MECH 430.

MECH 671 Renewable Energy Potential, Technology and Utilization in Buildings 3 cr.
A course that covers the principles and utilization of solar (thermal and photovoltaic), wind and geothermal energy, as well as energy from biomass. Issues relevant to energy efficiency and energy storage are discussed (heat and power store, and bio-tanks). The course distinguishes between energy sources for large-scale, industrial/commercial settings and those intended for smaller structures. The potential of using renewable energy technologies as a complement to and, to the extent possible, replacement for conventional technologies, and the possibility of combining renewable and non-renewable energy technologies in hybrid systems, are analyzed. Design aspects of active, passive, wind, bio-energy and photovoltaic energy conversion systems for buildings; and strategies for enhancing the future use of renewable energy resources are presented. The course will include several demonstrations of concept experiments. Prerequisite: MECH 310. Students cannot receive credit for both MECH 671 and EECE 675 or ENST 300.

MECH 672 Modeling Energy Systems 3 cr.
A course that covers indoor space thermal models. The course also deals with the analysis and modeling of building energy systems involving applications of thermodynamics, economics, heat transfer, fluid flow and optimization. The use of modern computational tools to model thermal performance characteristics of components of HVAC systems including chillers, recovery systems, flow control devices, heat exchanges, solar panels, dehumidification systems, boilers, condensers, cooling towers, fans, duct systems, piping systems and pumps. The course will use modern simulation tools extensively. Prerequisite: MECH 310.

MECH 673 Efficient Buildings with Good Indoor Air Quality 3 cr.
A course covering energy consumption standards and codes in buildings and energy conservation measures in built-in environments to enhance the building’s energy efficiency while maintaining space, thermal comfort, and indoor air quality requirement. Fundamental ventilation, indoor-air-quality, infiltration, natural and mechanical ventilation, importance, and impact of indoor air quality on human health and energy performance of the building air conditioning system, ASHRAE, and ASHRAE requirement for ventilation. Particular focus will be given to green energy alternative measures. An overview of the different heating, ventilation and air conditioning system designs is also covered. Performance and energy consumption of the conventional air conditioning system (constant and variable air volume), as well as the hybrid integrated air conditioning systems will be discussed and compared. The course will include several demonstrations of concept experiments. Pre/corequisite: MECH 310 or equivalent.

MECH 674/ENST 305/ECON 333 Energy Economics and Policy 3 cr.
A course that aims at developing an understanding of practical analytical skills of energy economics and planning approaches taking into account the cost of impact on the environment. This course will provide fundamental concepts of economic issues and theories related to energy, such as economics of natural and energy resources, aggregate supply and demand analysis, and the interrelationship between energy, economics and the environment as well as some important issues in energy policy. The course will also demonstrate the use of economic tools for decision-making in energy and environment planning and policy. It will explore the terminology, conventions, procedures, and planning policy applications. It will also cover a number of contemporary energy and environmental policy issues, including energy security, global warming, regulations of energy industries, energy research and development, and energy technology commercialization. Prerequisite: INDE 301. Students cannot receive credit for both MECH 674 and ENST 305 or ECON 333.

MECH 675 Building Energy Management Systems 3 cr.
A course that provides an opportunity for students to explore topics in energy management systems and management strategies for new and existing buildings; energy use in buildings; energy systems analysis and methods for evaluating the energy system efficiency; energy audit programs and practices for buildings and facilities; initiating energy management programs; guidelines for methods of reducing energy usage in each area in buildings; conservation of energy in planning, design, installation, utilization, maintenance; control and automation of the mechanical systems in existing and new buildings; air conditioning and ventilation systems in buildings; assessment and optimization of energy control strategies; prediction methods of economic and environmental impact of implemented control strategies and indoor settings. Prerequisites: MECH 310 and MECH 412.

MECH 676 Passive Building Design 3 cr.
A course that centers on issues surrounding the integration of sustainable and passive design principles into conceptual and practical building design. Topics will include: solar geometry, climate/regional limitations, natural lighting, passive design and sustainability initiatives, insulating and energy storing material, and bioclimatic design and concepts. Case studies will be used extensively as a vehicle to discuss the success/failure of ideas and their physical applications. The course will focus on the use of energy auditing/modeling methods as means to both design and evaluate the relative “greenness” of buildings, as well as to understand the global implications of sustainable buildings. The course will include several demonstrations of concept experiments. Prerequisite: MECH 671.

MECH 677 Heat Pumps 3 cr.
A course that focuses on heat pumps in low energy and passive buildings as well as ground source heat pump fundamentals, loop systems, open systems, soil/rock classification and conductivity, grouting procedures, and performance of ground source heat pumps in housing units; water loop heat pumps inside the building, bore holes, design and optimization of heat pump plants, including heat sources for such plants, and cost-effective design options will also be considered. The course includes study visits and seminars given by industry experts. Prerequisite: MECH 310.

MECH 678 Solar Electricity 3 cr.
A course that focuses on the solar cell: photo generation of current, characteristic current voltage (I-V) curve, equivalent circuit, effect of illumination intensity and temperature. The Photovoltaic (PV) generator: characteristic I-V curve of a PV generator, the PV module, connections of modules, support, safeguards, shadowing; the PV system: batteries, power conditioning; PV systems: grid-connected and stand-alone systems, economics and sizing, reliability, applications. Manufacturing: preparation of crystalline silicon wafers, formation of contacts, coatings, construction of modules. The course will include several demonstrations of concept experiments. Prerequisite: EECE 210.

MECH 679 Energy Audit Lab 2 cr.
A course designed to give students “hands-on” experience in carrying out energy audit measurements and studies on buildings to identify possible savings through selected energy conservation measures. Students will carry out measurements to investigate ventilation, air conditioning equipment, lighting and other office and lab equipment. Students will then be introduced to Visual DOE or E-Quest to perform energy simulation of buildings. Such tools will then be used to carry out a full building simulation taking into consideration occupancy data, equipment, lights and building envelope. A base case of energy usage will thus be established and energy conservation will then be applied to deduce possible savings and their economic value. Pre/corequisite: MECH 672.

MECH 680 HVAC and Refrigeration Systems Lab 3 cr.
The focus is on HVAC design optimization and energy conservation measures in built-in environment. It includes concepts of district cooling/heating systems, dehumidification, and personalized ventilation systems. This course has a major component of hands-on experience with building energy systems design, operation and efficiency. Students will learn how to use and develop test equipment and plan for assessing system performance. Experiments and lab projects will span a series of advanced modules on sustainable, energy-efficient HVAC and refrigeration systems as laboratory topics. Lab topics may vary every term. Prerequisites: Advanced standing and MECH 310.

MECH 681/CIVE 686/ARCH 073 Sustainable Built Environments 3 cr.
A course that enhances knowledge about the past present and future conditions of the built environment. The course starts with a general overview of global/regional environmental, social and economic issues. Then, focusing on the built environment, students are introduced to climate responsive and environmentally friendly concepts in planning and design. The impact of using construction materials and their environmental impact throughout the building’s lifecycle will also be discussed. Students will gain critical knowledge through interactive lectures, case study analysis and the proposal of concepts relating to a particular theme. Upon completing the course, students will be equipped with the necessary knowledge that will enable them to make informed project-related design decisions in their careers.

MECH 682 Principle of Integrative Building Design, Construction and Operation for Sustainability 3 cr.
This course centers on issues surrounding the integration of passive design principles into conceptual and practical building design sing basic design rules, simulation tools and conservation measures and protocols as means to improve building energy performance. Topics include: i) Building loads from envelop characteristics/materials including fenestration, building orientation and window location, type and area/shading and associated direct solar gains, people schedules/activities, lighting, infiltration; ii) building indoor requirements of thermal comfort and air quality; iii) passive design practices. Impact on building inherent load of passive design interventions including envelop, fenestration, shading orientation, shape, energy storage, trombe wall, natural and mixed ventilation, and other potential practices will be studied. Open-source software is used to model a base building in regional climate and impact of various measures on energy performance and comfort requirements inside the building. The full building simulation is performed using case study occupancy data, equipment, lights, and building envelope. Energy conservation is then applied to deduce possible savings, their economic value and contribution to reduced greenhouse gas emissions and a sustainable building design.

MECH 683 Wind Turbines: Design and Applications 3 cr.
This course offers an overview of key aspects in wind energy technology and the engineering principles underlying the operation of wind turbines. It covers the essentials of wind turbine systems, their working principle, power curve characteristics, speed control, and calculation. It also covers an overview of wind resource and historical development of wind. This course demonstrates how to apply fundamental principles of thermodynamic and fluid mechanics to wind turbine engineering. It also introduces fundamental concepts in materials and show how these concepts are applied to analyze stresses in airfoils and other wind turbine components. It also provides a summary of the electrical aspects of wind energy conversion, particularly regarding the actual generation and conversion of the electricity. Finally, this course examines wind turbine control system, explain the control system components in general, and covers common turbine operating strategies that are found in modern turbines. At the end of the course, students will achieve a basic solid understanding of the aerodynamics, dynamics, mechanics, electricity production, and control of wind turbines. Prerequisites: MECH 314 and MECH 320.

MECH 691/ENMG 628/EECE 648 Convex Optimization 3 cr.
Advanced course that covers topics such as convex sets, convex functions, convex optimization problems, scalarization for vector optimization, duality theory, optimality conditions. Example problems include least-squares, maximum likelihood estimation, minimax, and extremal volume problems. Prerequisite: MATH 218.

AMERICAN UNIVERSITY OF BEIRUT

Faculty of Health Sciences (FHS)

Undergraduate

Officers of the Faculty

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Zaher Dawy	Provost
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Gina Cordahi	Operations and Strategic Initiatives Manager
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Maya Abou Khouzam	Events and Projects Officer
Sawsan Awada	Graduate Officer

Faculty Academic Support

Maya Abi Chahine	Instructor of Public Health Practice (University for Seniors)
Nida' El Helou	Instructor (Practicum Coordination and Career Services)

Historical Background

The Faculty of Health Sciences (FHS) was established in 1954 as an independent School of Public Health, the first of its kind in the region. The name of the school was changed to the Faculty of Health Sciences in 1978 to accommodate programs in allied health.

FHS serves to educate and train professionals and competent leaders to help meet the health needs of Lebanon and the region.

Accreditation

In October 2006, the public health program (PHP) of the Faculty of Health Sciences (FHS) became accredited by the Council on Education for Public Health (CEPH) and was reaccredited in 2012 for seven years term extending to 2019. In December 2019, the CEPH board voted to renew the accreditation of the program for another seven-year term ending in 2026. The PHP includes the master of public health, master of science in epidemiology, master of science in environmental health, and the PhD in epidemiology, as well as the bachelor of arts in health communication and the bachelor of science in environmental health. CEPH is an independent agency in the United States, which is recognized to accredit schools and programs of public health. The PHP at FHS was the first graduate public health program to be accredited by CEPH outside the Americas and remains the only program in the Arab region. Accreditation indicates that the PHP of the FHS meets standards for public health education of leading schools of public health in the world.

Mission

To improve the health of populations and advance the public health discipline and field of health professions in the region and beyond, through excellence in education, research, and community engagement.

Vision

The leading academic voice and driver for equity, justice, and better health in the Arab region and beyond.

Undergraduate Programs

FHS offers a BS degree in: environmental health, medical audiology sciences (currently frozen), medical imaging sciences and medical laboratory sciences; and a BA degree in health communication.

Admission Requirements

To be eligible for admission to the programs leading to the degree of bachelor of science, candidates must have satisfactorily completed the freshman program in the Faculty of Arts and Sciences or its equivalent with a minimum cumulative GPA of 2.3 and a minimum science GPA of 2.3.

Freshman students applying to environmental health must complete the following science requirements: CHEM 101, CHEM 101L, MATH 101. Freshman students applying to medical laboratory sciences must complete the following science requirements: CHEM 101, CHEM 101L, CHEM 102, CHEM 102L, MATH 101, MATH 102, and BIOL 101. Freshman students applying to medical imaging sciences or medical audiology sciences must complete the following science requirements: PHYS 103 and PHYS 103L, MATH 101, MATH 102, and BIOL 101.

Freshman students applying to health communication must attain a cumulative GPA of 2.3 in the freshman year and a cumulative GPA of 2.3 in English courses taken in the freshman year.

Courses taken before the students are admitted to any of the programs may be credited at the discretion of the appropriate department.

To be eligible for admission to advanced standing (second year) in science majors, a candidate must have completed the equivalent requirements for the first (or second) year of undergraduate study in the Faculty of Health Sciences in the respective major and have met the following criteria:

- A minimum cumulative GPA of 2.3.
- A minimum GPA of 2.3 in science courses.

To be eligible for admission to advanced standing (second year) in health communication major, a candidate must have completed the equivalent requirements for the first (or second) year of undergraduate study in the major and have met the following criteria:

- A minimum cumulative GPA of 2.3.

Students who have completed a minimum of two terms of study as sophomores or their equivalent are eligible for admission to the first year in the Faculty of Health Sciences in science majors if the following criteria are met:

- A minimum cumulative GPA of 2.3.
- A minimum GPA of 2.3 in science courses.
- Completion of a minimum of 6 credits in basic science.

Students who have completed a minimum of two terms of study as sophomores or their equivalent are eligible for admission to the first year in the health communication major if the following criteria are met:

- A minimum cumulative GPA of 2.3.

Admission decisions are subject to the availability of places in the desired program of study. Lebanese students must present the Lebanese Baccalaureate or its equivalent and should be considered eligible by the AUB Office of Admissions for admission to the first year in health sciences. These candidates are evaluated based on SAT I scores and school performance.

Candidates holding the Lebanese Baccalaureate Part II—literature and humanities—or its equivalent are required to take CHEM 101, 101L and MATH 101 as remedial courses if joining the environmental health or medical laboratory sciences program, or MATH 101 if joining the medical imaging sciences or medical audiology sciences program. Candidates holding the Lebanese Baccalaureate Part II—sociology and economy—or its equivalent must take CHEM 101 and 101L as a remedial course if joining the environmental health or medical laboratory sciences program.

For complete and detailed information regarding admission to AUB, including recognized certificates, see the Admissions and Certificate and Class Chart sections of this catalogue.

Academic Rules and Regulations

Please refer to the section on General University Academic Information for information on attendance, classes and laboratories, examinations and quizzes, course loads, premedical requirements, incompletes, probation (placement on academic probation, removal of probation), dismissal and readmission, repeating courses, special students not working for a degree, tutorials, and withdrawal from courses.

Full-time Students and Credit Load

Students can normally register for up to 18 credits per term and 9 credits during the summer term. Students who wish to register for more than 18 credits (or 9 credits in summer) must petition the appropriate faculty committee for permission to do so.

Overload of 19 or 20 Credits

1. Sophomore students may be allowed to take an overload of 19 credits only if they are following the premedical track and based on their grades (composite score and school grades/ Early Admission list).
2. Junior or senior students may be allowed to take an overload of 19 or 20 credits in a regular term (or 10 credits in summer) only if they have a cumulative average of greater than or equal to 3.2 or a term average of greater than or equal to 80 (3.3).

Overload of 21 Credits

3. Graduating students in their last year may be allowed to take an overload of 21 credits only if they have a cumulative or a term average of greater than or equal to 3.2.
4. Students, with a cumulative average of less than 3.2, may be allowed to take an overload of up to 21 credits only if these credits are necessary to complete graduation requirements.
5. Students, with a term average of less than 3.2, may be allowed to take an overload of up to 21 credits only if these credits are necessary to complete graduation requirements provided their academic performance is consistently satisfactory.

Minors

The Faculty of Health Sciences offers three minors, which require the completion of a number of courses as specified in the list below.

Minor in Environmental Health

The minor in environmental health introduces students to the environmental system and the interactive processes that affect human health, environmental protection, and development. The minor in environmental health requires 15 credits, including the following: HPCH 205, ENHL 220, plus a minimum of 9 credits selected from the following ENHL courses: ENHL 221, ENHL 227, ENHL 231, ENHL 234, ENHL 235, ENHL 238, and ENHL 239.

Minor in Public Health

The minor in public health introduces students to substantive issues and methodological approaches in public health. Students are given an overview of the field in HPCH 205 and an introduction to epidemiology and biostatistics in EPBS 203. For the remaining courses towards the minor, students can choose from the list of approved electives from across the disciplines of public health according to their interests.
A minor in public health allows students to become more aware of the factors influencing health and hence more capable of making choices that influence their own health and that of their communities. In addition, a minor in public health expands students' career options by exposing them to an increasingly important and expanding profession. The minor in public health is not open to students majoring in health communication.

Students will be required to take:

- HPCH 205 Introduction to Public Health (3 credits)
- EPBS 203 Epidemiology and Biostatistics (3 credits)

The remaining 9 credits may be fulfilled through any combination of the following FHS courses (all courses are 3 credits unless otherwise noted):

Table 1: Elective courses for the Minor in Public Health

Department/Course	GE Societies and Individuals	GE Understanding our World	GE Quant Reasoning
Environmental Health			
ENHL 220: Fundamentals of Environmental Health Sciences		X	
ENHL 221: Management of Domestic and Hazardous Waste			
ENHL 234: Occupational Health			
Epidemiology and Biostatistics			
EPBS 213 (2 cr.): Survey Methods			X
Health Management and Policy			
HMPD 204: Introduction to Health Services Administration	X		

Health Promotion and Community Health			
HPCH 200: Global Public Health	X		
HPCH 201: Health Awareness and Behavior	X		
HPCH 220: Sexuality & Public Health	X		
HPCH 210: Health Communication Theory			
HPCH 211: Research Methods			
HPCH 237: Theories and Practice of Health Promotion	X		

Public Health			
PBHL 210: COVID-19, Inequality and Well-Being	X		
HEHI 201: Foundations of Humanitarian Engineering and Public Health Innovations	X		

The list of eligible electives was selected to include courses that cover broad public health content and/or introductory content to a subfield of public health. Students will be expected to develop their plan for the minor according to their interests and in discussion with the academic adviser.

Minor in Humanitarian Engineering and Public Health Innovations

The minor in humanitarian engineering and public health innovations is offered jointly by the Faculty of Health Sciences and the Maroun Semaan Faculty of Engineering and Architecture.

The minor is open to undergraduate students from all majors. It is a multidisciplinary offering that provides undergraduate students with the knowledge of the humanitarian engineering field, and equips them with the skills required to find innovative design solutions for challenges faced by disadvantaged populations taking into consideration two complementary perspectives; public health perspective and engineering perspective.

Students who complete the minor will be able to:

1. Apply participatory needs assessment tools and analyze the different dimensions of a public health problem.
2. Apply formal design methods to develop practical, feasible, scalable, and sustainable humanitarian engineering and public health innovations and interventions.
3. Apply skills required to manage complex projects while working in multidisciplinary teams.
4. Demonstrate entrepreneurial skills to take a solution/intervention from prototype to product.
5. Articulate and adhere to ethical standards in the process followed and in the intervention designed.
6. Present and document a problem and its solution to a diverse target audience.

The minor in humanitarian engineering and public health innovations consists of 15 credits, according to the following requirements:

- HEHI 201, "Foundations of Humanitarian Engineering and Public Health Innovations"
- HEHI 202 A/B, "Humanitarian Engineering and Public Health Innovations Capstone"
- One design course from the following list: AGSC 330, ARCH 061, ARCH 064, ARCH 072, ARCH 344, BMEN 501, CHEN 351, CHEN 471/571, CHEN 619, CHEN 798A, CIVE 552, CIVE 601, CIVE 628, CIVE 691, EECE 461, EECE 560, EECE 675, ENMG 663, ENMG 698E, ENSC 633, ENST 300, FSEC 310, FSEC 315, HPCH 204, HPCH 212, INFO 205, LDEM 254, LDEM 298, LDEM 633, MECH 430, MECH 530, MKTG 234, NFSC 306, NURS 408, PBHL 303, URDS 664, URPL 641
- One ethics course from the following list: BUSS 215, INDE 410, MCOM 215, MHRM 304, PHIL 205, PHIL 209, PSYC 305
- One social entrepreneurship course from the following list: AGBU 229, ARCH 068, ENMG 654, ENTM 220, INDE 412

Students interested to enroll in the minor are encouraged to inform the coordinators of the program at healthengineering@aub.edu.lb to benefit from adequate advising on study plans and ensure completion of all requirements.

Certificate Option

Students can opt for a certificate in humanitarian engineering and public health innovations. The "Humanitarian Engineering and Public Health Innovations" certificate requirements are:

- HEHI 201, "Foundations of Humanitarian Engineering and Public Health Innovations"
- HEHI 202 A/B, "Humanitarian Engineering and Public Health Innovations Capstone"
- An internship approved by the humanitarian engineering initiative of at least 8 weeks full-time

Students should declare the certificate before completing the requirements.

Upon prior approval of the students' adviser and the coordinators of the humanitarian engineering initiative, students who are required, as part of their degree requirement, to complete an internship or practicum, can also count that experience towards fulfilling the internship requirement for the certificate.

Course Descriptions

HEHI 201 Foundations of Humanitarian Engineering and Public Health Innovations 3 cr.
This is a multidisciplinary course that covers fundamentals of designing solutions for health challenges faced by disadvantaged populations. It introduces tools for identifying humanitarian and/or development needs and designing practical, scalable, and sustainable solutions and interventions. The course is offered to students from all majors. Students will be exposed to health and health system challenges in addition to design fundamentals including participatory needs assessment, formal multidisciplinary design processes, and relevant technologies and tools with real world applications and case studies. Open to students in advanced standing (second and third year for three years program and third and fourth year for four years program).

HEHI 202 A/B Humanitarian Engineering and Public Health Innovations Capstone 3 cr.
The capstone project course is an interdisciplinary service-learning design course focused on development and humanitarian engineering solutions for health challenges. In the capstone, students apply all tools learned in HEHI 201. Students work in multidisciplinary teams with disadvantaged communities, under joint supervision of at least two mentors from MSFEA, FHS, and other faculties. The capstone is divided into two sub-courses, HEHI 202A (1cr.) and HEHI 202B (2cr.), and must be registered in two consecutive terms. HEHI 202A has as a prerequisite: HEHI 201. HEHI 202B has as a prerequisite: HEHI 202A.

Upon prior approval of the students' adviser and the coordinators of the humanitarian engineering initiative, students who are required, as part of their degree requirement, to complete a capstone or final year project, can count that experience towards fulfilling the capstone requirement for the minor.
To graduate with the minor, students must attain a minor GPA of 2.3 or more to satisfy its requirements.

Interdisciplinary Course

PBHL 210 COVID-19, Inequality and Well-Being 3.0; 3 cr.
This course will introduce students to the COVID-19 pandemic as both a global and regional public health crisis, with a focus on prevention, mitigation, and impact. Geographically, it would focus on low and middle-income countries across the Global South and with a particular emphasis on the Arab region. The course will offer an intersectional analysis of the structural inequalities exposed by COVID-19, both in terms of differential vulnerability to and consequences of the pandemic by gender, age, socio-economic class, ethnicity, race, and immigrant/refugee status. Drawing on recent research by FHS and AUB faculty members, lectures will examine some of the historical, economic, epidemiological/health sector and social aspects of the pandemic and explore policy responses across various contexts. The course will additionally address the myriad gendered consequences of lockdown measures adopted to combat the pandemic, such as poor mental health outcomes, the rise in gender-based violence, disruptions to education and loss of income, among others. Focusing on Lebanon as a case study, the course will also analyze the impact of the concomitant public health and economic crises on the health sector, exploring the burden on fragile health systems as well as the diversion of already-precarious healthcare resources from "nonessential" services.

Department of Environmental Health

Chairperson	Jurdi, Mey
Professors	Habib, Rima; Jurdi, Mey; Massoud, May; Nuwayhid, Iman
Associate Professor	Dhaini, Hassan
Lecturer	Nasr, Joumana
Instructor	El Helou, Nida
Part-time Lecturer	Araji, Fayez

The Department of Environmental Health offers a three-year undergraduate program in environmental health, which is accredited by the Council on Education for Public Health (CEPH). The curriculum provides a broad education in basic sciences and fundamental knowledge of environmental health. Emphasis is placed on the evaluation and control of major environmental health problems in developing and developed countries in such fields as indoor and outdoor air pollution, water, sanitation and hygiene, food safety, risk analysis, municipal and hazardous waste, occupational health and safety, environmental impact assessment and audits, climate change and sustainable development. During their senior year, students in the program are also given the opportunity to complete an internship in pre-approved work settings, thus providing them with the opportunity to supplement their theoretical and laboratory experience with real-life practical field experience. Moreover, as part of the program, students are also required to take public health courses in epidemiology and biostatistics, health management and health promotion, which facilitates acquiring a minor in public health (for the minor policy, refer to the General University Academic Information section of this catalogue). Additionally, students can follow a pre-medical track, if interested in joining the medical school.

Due to increased environmental concerns, Lebanon and countries in the region are in great need of qualified personnel capable of planning and implementing policies, strategies, and programs to enhance human health and ecological vitality. This provides great job opportunities in various sectors, such as public/governmental agencies, international organizations, private companies, non-governmental organizations, and academic/research institutions.

Bachelor of Science in Environmental Health

Promotion

For promotion from year I to year II, students must complete a minimum of 30 credits. For promotion from year II to year III, students must complete a minimum of 62 credits.

Majorless Status

Majorless students in the environmental health program are required to take ENHL 220.

Residency Requirements

As per AUB policy, students must earn their final forty-five (45) credits while in residence (refer to the General University Academic Information section). Given the structured curriculum, and course offerings, students of the Faculty of Health Sciences must meet the following minimum residency requirements. The minimum number of credits is 45. However, the maximum number of required credits will depend on course equivalency.
Students pursuing the environmental health major are required to register for three regular terms.

Graduation Requirements

To be eligible for graduation with the degree of bachelor of science in environmental health, students must:

- Pass a minimum of 96 credit hours after freshman science class or its equivalent.
- Achieve a total cumulative GPA of 2.3 and achieve a cumulative GPA of 2.3 in the major field of study.

Curriculum for BS in Environmental Health

Course Number	Course Title	Lecture Hrs./ Week	Lab Hrs./ Week	Credits
Fall 1				
BIOL 200	Diversity of Life	2	2	3
CHEM 208	Brief Survey of Organic Chemistry	2	2	3
CHEM 209	Introductory Organic Laboratory	2	2	3
ENGL 203	Academic English	2	2	3
ENHL 220	Fundamentals of Environmental Health Sciences	3	0	3
Term Credit Total				**15**

Spring 1				
ENHL 221	Management of Domestic and Hazardous Wastes	3	0	3
ARAB 2xx	Understanding Communication (Arabic)	3	0	3
ENGL 204	Advanced Academic English	3	0	3
ENHL 227	Environmental Microbiology	2	2	3
	Cultures and Histories – History of Ideas	3	0	3
Term Credit Total				**15**

Fall 2				
ENHL 231	Water and Wastewater Quality Control	3	0	3
ENHL 232	Instrumentation, Analytical Techniques and Sampling	3	1	3
ENHL 238	Indoor and Outdoor Air Pollution	3	0	3
EPBS 203	Epidemiology and Biostatistics	2	2	3
EPBS 203A	Biases in Epidemiology	1	0	1
	Cultures and Histories Elective	3	0	3
Term Credit Total				**16**

Spring 2				
ENHL 233	Quality Determination of Water and Wastewater	2	2	3
ENHL 234	Occupational Health	2	2	3
ENHL 235	Toxicology and Risk Analysis	3	0	3
ENHL 239	Food Safety	3	0	3
EPBS 213	Survey Methods	1	2	2
	Societies and Individuals Elective	3	0	3
Term Credit Total				**17**

Summer 2				
ENHL 236	Practicum	-	-	3
Term Credit Total				**3**

Fall 3				
ENHL 242	Environmental Management Tools and Applications	3	0	3
HMPD 204	Introduction to Health Services Administration	3	0	3
HPCH 237	Theories and Practices of Health Promotion	3	0	3
	Free Elective	3	0	3
PHIL 209	Environmental Ethics	3	0	3
Term Credit Total				**15**

Spring 3				
ENHL 243	Global Environmental Issues	3	0	3
	Free elective	3	0	3
	Free elective	3	0	3
ENHL 245	Environmental Economics	3	0	3
	Cultures and Histories Elective	3	0	3
Term Credit Total				**15**

Total Credits	**96**

Course Descriptions

ENHL 105 Environment and Health 3.0; 3 cr.
A course that exposes the students to major local and global environmental issues relating to air, water, land and energy and the importance of proper integrated management to promote and protect public health and achieve sustainable development. In addition, the course highlights the importance of environmental laws and policies as major tools in the management of environmental health issues. Environmental ethics is also emphasized as a critical core factor of the management processes. The importance of environmental awareness of different stakeholders is exposed as a means to achieve proposed objectives.

ENHL 220 Fundamentals of Environmental Health Sciences 3.0; 3 cr.
A course that explores the interdisciplinary nature of environmental health sciences. It explains fundamental scientific concepts relating to the various environmental components and focuses on the relationship between the environment and human health. Using case studies and critical thinking exercises, the course covers a variety of topics including air, water and soil pollution, energy, waste management, climate change, biodiversity, and sustainable development. It also highlights the relationship between population growth, economics, politics, ethics, and the environment.

ENHL 221 Management of Domestic and Hazardous Wastes 3.0; 3 cr.
A course that introduces the elements of solid waste management: sources, characterization, generation rates, collection, transportation, and disposal technologies. Concepts are presented within the context of integrated management: reduction, reclamation, recycling, and disposal. Socioeconomic implications at the community and national levels are emphasized.

ENHL 227 Environmental Microbiology 2.2; 3 cr.
A course that introduces students to the microbial world and relates microbiology to environmental issues and community health. It explores the fundamentals of bacteriology, virology, and parasitology and covers infectious diseases transmitted through air, water, food, soil, municipal solid wastes, and wastewater. It covers topics such as microbial environments, detection of microorganisms and their activities in the environment, industrial microbiology, and bioremediation. Pre/corequisites: BIOL 200/201 and ENHL 220.

ENHL 231 Water and Wastewater Quality Control 3.0; 3 cr.
A course that focuses on the principles of water management (both in quantity and quality) with emphasis on fresh water resources for domestic and multi-purpose utilization. Characterization, treatment, reclamation, and recycling of wastewater are also discussed. National and international guidelines, standards, and directives for water and wastewater management are presented. Prerequisites: ENHL 220 and ENHL 227.

ENHL 232 Instrumentation, Analytical Techniques and Sampling 3.1; 3 cr.
A course that focuses on the basic concepts and application of different sampling methods, and instrumental and analytical techniques: electrical conductance, absorption spectrophotometer (visible, ultraviolet light, infrared, atomic absorption), emission (flame photometry) and chromatography (gas chromatography, high performance liquid chromatography, ion chromatography). Prerequisite: ENHL 220.

ENHL 233 Quality Determination of Water and Wastewater 2.2; 3 cr.
A course that focuses on the quality determination (physical, chemical, biochemical, and microbiological) of water and wastewater samples using standard analytical techniques. Students are required to write professional quality assessment reports. Proper presentation and interpretation of results and practical recommendations for preventive or corrective measures are emphasized. Prerequisites: ENHL 220, ENHL 231 and ENHL 232.

ENHL 234 Occupational Health 2.2; 3 cr.
A course that provides an overview of the general principles of occupational health using a multidisciplinary framework. Applying diverse perspectives, students of the class will learn about hazards in the workplace and the health, economic, political, social, and societal ramifications of occupational health and safety. The course offers a dynamic learning environment that emphasizes critical thinking and engagement. Students will learn by applying research and readings to case studies, media analysis, and in-class discussions. Prerequisite: ENHL 220.

ENHL 235 Toxicology and Risk Analysis 3.0; 3 cr.
A course that introduces students to the principles of toxicology (exposure to toxicants and their absorption, distribution, metabolism, and excretion), selected toxic chemicals, and the impact of toxicants on selected human organs and systems. It also introduces students to the application of toxicology in public health, namely dose-response and causal relationships, risk assessment, management, and communication including the process of setting environmental standards. Prerequisites: ENHL 220, BIOL 200/201, (CHEM 208 and CHEM 209).

ENHL 236 Practicum 3 cr.
This is a required course for environmental health students providing them with an opportunity to supplement their theoretical and laboratory experience with a real-life practical field experience. Students are assigned to environmental projects and challenges in pre-approved work settings in the public sector, private sector (industries, consulting firms), academic and research centers, UN agencies, or international and national NGOs. Students will address current environmental issues supervised by environmental practitioners. Wherever feasible, practicum sites will be assigned to meet the students' long term academic and career objectives. The experience will sharpen the students' writing, technical and analytical skills in a supervised setting and develop the skills to conceive of and successfully complete a well-defined project within a limited time frame. Prerequisites: ENHL 221, 233, 234, 235, 238, ENHL 239.

ENHL 238 Indoor and Outdoor Air Pollution 3.0; 3 cr.
A course that discusses exposure and health effects of indoor (e.g., asbestos, tobacco smoke, formaldehyde, radon) and outdoor air pollutants. Students are introduced to modeling, quality determination, and management strategies. This course includes a "service learning" component through which students will engage with a predetermined organization to identify and address a public health problem. This opportunity will allow students to "share" and "receive" knowledge and expertise leading to enhanced learning among students and benefit to the chosen organization. Prerequisites: ENHL 220 and CHEM 208.

ENHL 239 Food Safety 3.0; 3 cr.
A course that focuses on food safety from production to consumption (preparation, processing and preservation, storage, marketing, and trading). Emphasis is placed on the development, implementation and appraisal of food safety management systems and certification schemes (such as GHP, GMP, HACCP, ISO 22000 and FSSC) at the national and international levels. Prerequisites: ENHL 220, ENHL 227, and CHEM 208.

ENHL 242 Environmental Management Tools and Applications 3.0; 3 cr.
A course that provides an overview of the general principles relating to environmental management tools and applications. Topics covered include environmental impact assessment, environmental auditing, and environmental regulations and standards. To provide students with practical experience, they are requested to conduct a community based environmental health project. Emphasis is placed on investigating the problem and proposing management strategies. Senior standing required. Prerequisites: ENHL 221, 233, 234, 235, 238, ENHL 239.

ENHL 243 Global Environmental Issues 3.0; 3 cr.
Global environmental problems such as climate change, water shortage, floods, fires, depletion of stratospheric ozone, and the loss of biodiversity have captured news headlines and the attention of the public. These developments are transnational, in that their impact is felt across national boundaries and effective responses require coordinated efforts transcending any individual state. The establishment of conventions and institutions facilitating international cooperation reflect this reality, yet the success of these efforts has been frequently inadequate and criticized as favoring the powerful over the disenfranchised. This course engages students in a review of global environmental issues affecting the Arab region and beyond. This review will explore research on the history and causes of these environmental problems, giving special attention to their framing in public discourse. The ecological, social, economic, political, cultural, and health aspects of the environmental problems are discussed in a debate format. The local, national, and international efforts to develop strategies to address these problems are also raised. Prerequisite: ENHL 242.

ENHL 245 Environmental Economics 3.0; 3 cr.
A course that introduces the principles of economics and its use as a tool to analyze and value the environment by providing a quantitative measure that can guide policy. The course focuses on the cost of environmental pollution and degradation in contrast to the economic value of conservation, environmental amenities (such as clean water, air, and soil) and environmental mitigation and remediation. Prerequisite: ENHL 220.

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (6)	Understanding the World (12) Quantitative Reasoning (6)	Major Courses (42)	Community-Engaged Learning (3)
Lecture Course (9+12 +6+ 12+6+ 42+3)	Required Arabic Course (3 Required English Courses: ENGL 203 (3), 204 (3)	Cultures and Histories electives (9 Phil 209 (3)	HPCH 237(3 Elective (3)	ENHL 220 (3) BIOL 200(4) CHEM 208(3) EPBS 203(3) EPBS 213(2) EPBS 203A(1)	ENHL 220 (3), 227(3), 221(3), 239(3), 231(3), 232(3), 233(3), 234(3), 235(3), 238(3), ENHL 242(3), 243(3), 245(3)	HMPD 204 (3)
Lab (4+4)				BIOL 200(4) CHEM 209(2)	ENHL 232(3), 234(3), 233(3), 227(3)	
Seminar (2)					ENHL 242(3), 243(3)	
Research Project (1+3)					ENHL 242(3), 243(3)	
Fieldwork					ENHL 236(3)	

Students take, in addition to the required courses above, 9 free elective credits in various fields and modes of analysis.

Department of Health Promotion and Community Health

Chairperson	Makhoul, Jihad
Professors	Abdulrahim, Sawsan; Makhoul, Jihad
Associate Professors	Kabakian-Khasholian, Tamar; El Kak, Faysal (Joint appointment with FM)
Lecturers	Al Barazi, Rana; Kanj, Mayada; Khawam, Grace
Instructors of Public Health Practice	Kalot, Joumana; Najem, Martine
Part-time Instructor	Hassan, Nabil
Affiliate	Saracini, Federico
Research Affiliate	Salloum, Ramzi

The department offers a three-year bachelor of arts (B.A.) degree in health communication (HCOM) and a master of public health (MPH) degree in health promotion and community health (HPCH).

The HCOM program prepares undergraduate students to develop, deliver, and evaluate health communication tools and activities; and to communicate health information to diverse audiences. Students enrolled in the program will receive most of their disciplinary training in the HPCH department but will also take courses in the media studies program at the Faculty of Arts and Sciences (FAS). HCOM courses are designed to train students in public health theory and methods; planning, managing and evaluating health communication; and communicating health messages to audience of interest.

The HPCH department also contributes to teaching courses in other undergraduate programs in the Faculty of Health Sciences and in a teaching diploma in health education with the Department of Education at the Faculty of Arts and Sciences.

Bachelor of Arts in Health Communication

Promotion

For promotion from year I to year II, students must complete a minimum of 32 credits. For promotion from year II to year III, students must complete a minimum of 66 credits.

Residency Requirements

As per AUB policy, students must earn their final forty-five (45) credits while in residence (refer to the General University Academic Information section). Given the structured curriculum, and course offerings, students of the Faculty of Health Sciences must meet a minimum residency requirement. The minimum number of credits is 45. However, the maximum number of required credits will depend on course equivalency.

Students pursuing the health communication major are required to register for four regular terms.

Graduation Requirements

To be eligible for graduation with the degree of bachelor of arts in health communication, students must:

- Pass a minimum of 95 credit hours after freshman class or its equivalent.
- Achieve a total cumulative GPA of 2.3 and achieve a cumulative GPA of 2.3 in the major field of study.

Curriculum for BA in Health Communication

Course Number	Course Title	Lecture Hrs./ Week	Lab Hrs./ Week	Credits
Fall 1				
HPCH 210	Health Communication Theory	2	2	3
EPBS 203	Epidemiology and Biostatistics	2	2	3
HPCH 205	Introduction to Public Health	2	2	3
HPCH 211	Research Methods	2	2	3
ENGL 203	Academic English	3	0	3
Term Credit Total				**15**

Spring 1				
EPBS 213	Survey Methods	1	2	2
HPCH 203	Interpersonal Communication	3	0	3
HPCH 201	Health Awareness and Behavior	2	2	3
MCOM 240	News Reporting and Writing	3	0	3
MCOM 228	Introduction to Digital media	3	0	3
ENGL 204	Advanced Academic English	3	0	3
Term Credit Total				**17**

Fall 2				
HPCH 237	Theories and Practice of Health Promotion	3	0	3
MCOM 215	Media Law and Ethics	1	2	3
ARAB 223	Arabic for the Media	3	0	3
HPCH 208	Advocacy and Activism for Social Change	2	2	2
HPCH 212	Design and Evaluation of Health Communication Activities	2	2	3
Term Credit Total				**14**

Spring 2				
HPCH 204	Social Marketing	2	2	3
HPCH 207	Risk Communication in Public Health Practice	1	2	2
	Cultures and Histories (History of Ideas) Elective I	3	0	3
	Culture and Histories Elective II	3	0	3
BIOL 209 Or BIOL 210	Concepts and Connections Or Human Biology	3	0	3
	Arabic Communication Elective	3	0	3
Term Credit Total				**17**

Summer				
HPCH 250	Practicum			2
Term Credit Total				**2**

Fall 3				
HPCH 200	Global Public Health	3	0	3
	Societies and Individuals elective			3
	Free Elective	1	2	2
MCOM 246	Digital and Multimedia News	3	0	3
MCOM 247 Or MCOM 226	Trauma Journalism Or Journalism and Society	3	0	3
Term Credit Total				**14**

Spring 3				
HPCH 215	Project Management Skills	1	2	2
	Understanding the World Elective I	3	0	3
	Societies and Individuals Elective II	3	0	3
	Culture and Histories Elective III	3	0	3
HPCH 209	Digital Health for Public Health	1	2	2
HPCH 251	Capstone Seminar	0	2	2
Term Credit Total				**15**

Total Credits	**95**

ARAB 223 is replaced by a Culture and Histories elective for students placed in Arabic as a Foreign Language.

Course Descriptions

HPCH 200 Global Health 3.0; 3 cr.
The course presents an overview of global public health through a multidisciplinary approach. This will be accomplished through readings and other materials from public health, the social sciences, and the humanities on global public health issues, as well as through learner centered class activities and writing assignments. The course will trace the origins of global health as a field and analyze the role of different international, national, and local actors in current global health issues. Throughout the term, students will examine case studies of current global health challenges, identify their social, economic, and political causes, and discuss approaches and policies that ensure health, equity, and social justice. Not open to sophomores and first year students in all faculties.

HPCH 201 Health Awareness and Behavior 3.0; 3 cr.
This course in health awareness and behavior introduces students to modern concepts and understanding of holistic health and dimensions of health and wellness. It aims to provide students with up-to-date knowledge on contemporary health issues to help shape their perceptions, attitudes, and behaviors, that will ultimately lead to higher levels of health and wellness, and reduce vulnerability to illness and disability, within a framework of human rights. This is achieved through a dynamic and interactive classroom setting engaging students in critical assessment around their attitude, knowledge, and lifestyle behaviors. The course will encourage students to participate in open class discussions, material presentations, class debates around issues related to students' health perceptions, daily health habits, behavior, and national and global public health matters.
Ultimately, students are expected to examine their attitudes towards health issues, engage in health behavioral change, to promote a healthier lifestyle, and make informed decisions that will not only prevent or delay the onset of certain health conditions but also promote holistic health and wellness.

HPCH 120/ HPCH 220 Sexuality and Public Health 3.0; 3 cr.
This course examines human sexuality and sexual health through biological, psychological, sociocultural, and human-rights perspectives. Through interactive lectures, discussions, and applied assignments, students will explore sexual development across the life course within global and regional contexts, with emphasis on public health and rights-based approaches.
The course analyzes how biological, sociocultural, and medical factors interact to shape sexual attitudes, behaviors, policies, and health outcomes. Special attention is given to sexuality discourses in Lebanon and the broader region.
Students will learn to critically evaluate myths, misconceptions, and misinformation; understand how communication shapes sexual-health knowledge, behaviors, stigma, and policy; and develop skills to promote sexual health and well-being among diverse populations with respect, empathy, and cultural sensitivity. The course supports students in making informed, ethical, and healthy decisions in their personal lives and communities.

HPCH 203 Interpersonal Communication 2.2; 3 cr.
This course is an introduction to human communication theory and practice. It emphasizes both interpersonal and group communication skills. The course introduces students to assumptions we make about communication and key elements of the communication process. The course attempts to highlight the connection between communication concepts and everyday life by using interactive methods that allow students to experience concepts in relation to their own lives.

HPCH 204 Social Marketing 2.2; 3 cr.
How can we influence people's behaviors, such as wearing masks, getting a vaccine jab, observe physical distancing, screening for cancer, or even voting? Can we 'sell' healthy eating, tooth brushing, recycling, the same way corporations sell their products? Social Marketing is a discipline that can answer these questions (and many more) to address a broad range of health, environment, political, and social issues. Social marketing "seeks to develop and integrate marketing concepts with other approaches to influence behaviors that benefit individuals and communities for the greater social good." Social marketing requires soul and heart. In this course, students will learn how to apply the basic concepts of Social Marketing into strategic plans aimed to address 'wicked problems' affecting local communities. Prerequisites: HPCH 210 and HPCH 212.

HPCH 205 Introduction to Public Health 2.2; 3 cr.
This course introduces undergraduate students to the basic concepts, disciplines, and principles of Public Health. Students learn how biological, environmental, social, economic, and political factors are intimately related to health, healthcare access, and illness, and how these can be addressed at the individual, community, and population levels. The course incorporates a critical perspective on current health challenges, and most sessions include a common lecture and practical activities based on case studies from around the world, particularly the Arab region. Throughout the course, there will be a focus on social inequities in health.

HPCH 207 Risk Communication in Public Health Practice 1.2; 2 cr.
In this course students will learn the basic concepts of risk communication and its applications in public health. This course will cover the basic principles of theories of risk perception (e.g., Prospect Theory) and discuss their applications in public health incidents responses. We will include elements of risk message framing, public engagement, using traditional and social media, as well as ethical considerations of public communication. At the end of this course, students will be able to apply these concepts to design messages to convey risk information in public health by producing messages in various formats, including fact sheets, press releases, video scripts, text messages, and media kits. The final presentation will consist of a mock press conference on a pre-determined topic. Prerequisites: HPCH 210 and HPCH 212.

HPCH 208 Advocacy and activism for Social Change 2.2; 3 cr.
In this course, students are exposed to the art and science of advocacy in public health. The course covers the basic elements of an effective evidence-based advocacy process, including defining the issue, defining the audiences, and crafting advocacy messages. Students work in groups to develop an advocacy plan for an advocacy project addressing a public health issue of relevance to Lebanon or a country of the region. Students will then work individually to develop an applied advocacy tool such as a newspaper article, a letter of complaint, photovoice material or a policy statement to deliver a health advocacy communication message.
This course is based on service learning, a pedagogical approach that "combines academic instruction, meaningful service to the community and critical reflective thinking to enhance student learning and social responsibility.

HPCH 209 Digital Health for Public Health 1.2; 2 cr.
Social media mobile apps and artificial intelligence (AI) have become ubiquitous in nearly all aspects of our lives. These technologies are changing the ways healthcare providers interact with and deliver care to their clients. Digital technologies have also changed the way researchers design and implement health promotion and intervention programs, and the way consumers gather health information and make health decisions. This course is designed to introduce students to eHealth, which encompasses the use of digital technologies to deliver healthcare programs and to promote health among different publics. eHealth or digital health encompasses, telehealth (telecare, telemedicine, tele-coaching, tele-rehab), technology-enabled care services, mobile apps, and social media for health promotion campaigns. Prerequisites: MCOM 228 and MCOM 246.

HPCH 210 Health Communication Theory 2.2; 3 cr.
In this course students will learn the main theoretical frameworks and tools applied in health communication. Students will discover how these frameworks can be used to analyze problems and convey health-related content among various audiences in different contexts and settings. A relevant part of this course will discuss the use of communication for health information dissemination and doctor-patient communication, and the politics of healthcare. Through examples and realistic scenarios, students will learn health communication by doing health communication.

HPCH 211 Research Methods 2.2; 3 cr.
This course is an introduction to methodologies for research used in health communication, including both quantitative and qualitative methods. Students will learn how to frame questions, review scientific literature, select appropriate designs and methods to measure knowledge, attitudes, and behavior, and analyze data to guide communication strategies. Students are provided with opportunities to apply various methods of data collection and analysis to interpret research findings for decision-making about health communication activities and programs.

HPCH 212 Design and Evaluation of Health Communication Activities 2.2; 3 cr.
In this course, students learn how to plan, implement, and evaluate health communication activities, starting with the health-related needs assessment in the community to determine priority areas for health promotion. Based on these areas, students go through the process of developing objectives, selecting appropriate activities, and implementing and evaluating an activity. Prerequisites: HPCH 210, HPCH 211, and EPBS 213.

HPCH 215 Project Management Skills 1.2; 2 cr.
This course aims to familiarize students with basic concepts and terminology in project management. Many health communication activities are implemented using projects and project teams. This course introduces students to the core concepts and skills for managing these projects effectively; ensuring they are completed on time, within budget, and meeting performance objectives. This course aims to familiarize students with basic concepts and terminology in project management. It provides an overview of the project life cycle starting from rationale, writing project objectives, developing activities and action plan which includes a budget break-down. The course will also introduce students to how they can set indicators to monitor and evaluate project activities. Prerequisite HPCH 250.

HPCH 237 Theories and Practice of Health Promotion 3.0; 3 cr.
This course introduces students to a range of health promotion theories that address multiple level determinants of health and illness. Current public health challenges will be discussed to enhance understanding of how determinants at the individual, organizational, community and sociopolitical levels interact and contribute to health risks and outcomes. The course emphasizes an ecological approach and the health promotion principle of enabling people to increase control over their health. Readings and class discussions advocate for equitable policies and social justice.

HPCH 240 Workshop in Interpersonal Communication for Health Professionals 0.10; 0 cr.
This workshop is an introduction to human communication theory and practice for the disciplines of the division of health professions; the latter includes medical imaging sciences and medical laboratory sciences. The course introduces undergraduate students of the division to essential elements, concepts and principles of the communication process, with special considerations to interpersonal interactions commonly encountered in clinical settings, and to specificities of communication in small group contexts. The workshop emphasizes the development and application of effective interpersonal communication skills in diverse healthcare settings including hospitals, laboratories, imaging centers, and other facilities (e.g., homes for the elderly, hospice settings).

HPCH 250 Practicum 2 cr.
This course provides students with the opportunity of gaining field experience in the development, implementation, and/or evaluation of health communication activities or programs. At the end of the second year of the program, students will be placed at a site where they will be able to apply knowledge and theory learned through their courses. They will engage in an ongoing health communication project or health communication activities of certain projects by undertaking specific tasks under the supervision of a field preceptor and upon the approval of the course coordinator. Students who have completed all first- and second- year HCOM required courses are eligible to enroll in the practicum. Prerequisites at least two of the following: HPCH 204; HPCH 207 and HPCH 208.

HPCH 251 Capstone seminar 0.2; 2 cr.
This seminar is taken during the last term of the BA in health communication program. It is closely linked to the summer internship where students are required to complete it between their second and third year. The course is designed to challenge students to critically reflect on the knowledge they have gained in all their prior coursework and then synthesize that knowledge with field experience, with a focus on the role of health communication in contributing to public health in Lebanon. The course provides students with the opportunity to further develop the full set of competencies essential for a health communication graduate. It also provides them time and space to sharpen their leadership and other professional skills, as well as demonstrate independent thinking and respect for diversity. Prerequisite: HPCH 250.

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (6)	Understanding the World (6) Quantitative Reasoning (5)	Major Courses (51+2+2)	Community Engaged Learning (3)	Other courses (3)
Lecture Course (9+12 +6+11 +51+2 +2+3+3)	Required Arabic course (3); Required English courses: ENGL 203 (3), 204(3)	12 credits 9 in Cultures and Histories MCOM 215 (3)	Societies and Individuals (6)	Understanding the world electives (3) BIOL 209 or 210 (3) EPBS 203(3) EPBS 213 (2)	HPCH 200(3); HPCH 201(3); HPCH 203(3); HPCH 204(3); HPCH 205(3); HPCH 207(2); HPCH 208(3); HPCH 209(2); HPCH 210(3); HPCH 211(3); HPCH 212(3); HPCH 215(2); HPCH 237(3); MCOM 240(3); MCOM 215(3); MCOM 246(3); MCOM 247 or 226 (3); MCOM 228(3)	HPCH 207 (1); HPCH 208 (1)	ARAB 223 (3)
Lab (3)				EPBS 203(3) EPBS 213 (2)			
Seminar (2)					HPCH 251(2)		
Fieldwork					HPCH 250(2)	HPCH 250 (2)	

Division of Health Professions

Director	Melhem, Nada
Executive Committee	Hannoun, Salem (MIS Program Coordinator) Melhem, Nada (MLS Program Coordinator)

The Division of Health Professions at the Faculty of Health Sciences hosts jointly with the Faculty of Medicine the following programs: medical audiology sciences (MAS, currently frozen), medical imaging sciences (MIS) and medical laboratory sciences (MLS). Students are hosted at the Faculty of Health Sciences and undergo their clinical training to complete their graduation requirements at the American University of Beirut-Medical Center (AUBMC).

Mission

The Division of Health Professions, run jointly by the Faculty of Health Sciences and the Faculty of Medicine, provides excellent educational curricula in all its majors with intensive hands-on training, preparing students to deliver outstanding health services to the patient and community. The division conducts creative research linked to clinical medicine and public health. The division adheres to ethical values and promotes quality care with dignity and respect.

Vision

The Health Professions Division is a leading program in the region, preparing innovative and versatile health professionals who impact health and advocate patient rights.

Policy on Registration of Courses During Practical Training

At the Division of Health Professions, students are required to abide by the time allocated for the clinical training at AUBMC. Any student registering for a course during that time will be dropped automatically from the course.

Bachelor of Science in Medical Audiology Sciences

Note: This program is frozen.

This program is run in coordination with the Department of Otolaryngology Head and Neck Surgery at the Faculty of Medicine. The mission of the medical audiology sciences (MAS) program is to prepare students for a successful career in audiology by providing them with a foundation in liberal arts education, coupled with a high-quality clinical education that is underpinned by the fundamental sciences of audiology and a rigorous scientific approach. The academic program is designed to produce skilled clinicians who follow professional standards and ethical principles while serving individuals with hearing or balance disorders in Lebanon and the region. Through various professional and community service activities, the program strives to build in its students the importance of continuing education, developing leadership skills, as well as advocating and supporting the needs of all persons with hearing and vestibular disorders. The mission of the program is consistent with the mission of the institution in that it stresses the importance of providing academic excellence in teaching and research, inspiring students to become leaders in their professional field, as well as helping students develop a lifelong sense of learning and civic responsibility.

Promotion

For promotion from year I to year II, students must complete a minimum of 33 credits. For promotion from year II to year III, students must complete a minimum of 68 credits.

Residency Requirements

As per AUB policy, students must earn their final forty-five (45) credits while in residence (refer to the General University Academic Information section). Given the structured curriculum, nature of the practical training, and course offerings, students of the Faculty of Health Sciences must meet the following minimum residency requirements. The minimum number of credits is 45. However, the maximum number of credits will depend on course equivalency.

Students pursuing the medical audiology sciences major are required to register for four regular terms.

Graduation Requirements

To be eligible for graduation with the degree of bachelor of science in medical audiology sciences, students must:

- Pass a minimum of 103 credit hours after freshman science class or its equivalent.
- Obtain a minimum grade of C+ in each of ORLG 220, ORLG 230, ORLG 240, and ORLG 250.
- Achieve a total cumulative GPA of 2.3.
- Achieve a cumulative GPA of 2.3 in the major field of study.

Course Descriptions

MAUD 200 Overview of Audiology and Clinical Practice 1.0; 1 cr.
This course is designed to acquaint the students with the profession of audiology and requirements for clinical practice. Students will complete 25 clinical observation hours. First term.

MAUD 201 Anatomy and Physiology of the Auditory - Vestibular System 3.0; 3 cr.
An in-depth coverage of anatomy and physiology of the auditory and vestibular systems. First term. Prerequisite: PHYL 246 or BIOL 202.

MAUD 202 Basic Audiological Procedures 2.2; 3 cr.
A detailed consideration of the rationale, development, and psychoacoustic theory behind pure tone audiometry, speech audiometry, and clinical masking. Acoustic immittance will also be covered. Students will learn to perform and interpret basic audiological procedures and master clinical masking through hands-on training and software-based activities. First term. Pre/corequisite: MAUD 200 or consent of instructor.

MAUD 203 Pediatric Audiology 3.0; 3 cr.
This course surveys methods and procedures used in the evaluation and management of auditory function in neonates, infants, and young children. It includes identification and intervention procedures. There will be a review of special populations of children with hearing loss. Development of early hearing loss detection and intervention programs will be discussed. First term. Pre/corequisite: MAUD 201.

MAUD 204 Acoustics, Psychoacoustics, and Instrumentation 2.2; 3 cr.
This course covers the fundamentals of sound, psychophysical measurement procedures, psychological acoustics, audiometric standards and electro-acoustic calibration of basic audiological equipment. Laboratory exercises are provided to illustrate course content. First term.

MAUD 205 Amplification I 2.2; 3 cr.
This course covers the background and development of the design of hearing aids, ear mold acoustics, electroacoustic characteristics, performance standards, and measurement techniques. Second term. Prerequisite: MAUD 204.

MAUD 206 Amplification II 2.2; 3 cr.
This course covers advanced procedures for selection and fitting of digital and programmable hearing aids. Students will learn subjective quality measurement, current and emerging prescriptive and fitting verification methods, and advanced hearing aid features. Auditory, visual, and vibrotactile receptive communication technologies will be covered, with an emphasis on needs assessment, selection, evaluation, and the verification process. Principles and procedures for implantable hearing devices from pre-candidacy evaluations through postoperative therapies will be discussed. First term. Prerequisite: MAUD 205.

MAUD 207 Auditory Evoked Potentials 3.0; 3 cr.
This course will cover basic concepts in electrophysiological recordings (e.g., electrode types/uses, far and near field recordings, volume conduction, dipole sources). Recording of both near- and far-field electrical responses will be studied. Recording techniques and test interpretation of common clinical evoked potentials will be covered, including electrocochleography (ECochG), auditory brainstem response (ABR), and auditory steady state response (ASSR). Second term. Prerequisites: MAUD 201 and MAUD 202.

MAUD 208 Practicum Project Offered as MAUD 208A: Practicum Project I 0 cr. and MAUD 208B: Practicum Project II 1.4; 3 cr.
This course aims to introduce students to research in the field of Audiology by engaging them in a Capstone project. Projects may take several forms including development of surveys, evidence-based research, business plans, critical literature reviews with applications to clinical problems solving, development of clinical protocols, or participation in on-going research projects in the department. Students will be required to write a scholarly report summarizing the project. Second term. Prerequisite: ORLG 230.

MAUD 209 Vestibular-Balance Assessment and Management 3.0; 3 cr.
The goal of the course is to provide students with a concise overview of the theory behind vestibular and balance testing and practical ways to assess and manage patients who have vestibular/balance problems. First term. Prerequisites: MAUD 201 and ORLG 230.

MAUD 210 Aural Rehabilitation and Counseling 3.0; 3 cr.
Overview of approaches to audiologic management of adults and children with hearing difficulties. Topics include in-depth interview techniques, self-assessment instruments, auditory training, speech reading, interdisciplinary teaming, communication repair strategies, technology, adjustment to amplification, and management of auditory processing disorders. Operation and troubleshooting techniques for amplification systems commonly used in a classroom will be discussed (e.g., hearing aids, FM systems, assistive listening devices, vibrotactile devices, and cochlear implants). The course will also include psychoeducational/ psychosocial and counseling strategies for patients and family management. First term. Prerequisite: ORLG 230.

MAUD 211 Medical Audiology 2.2; 3 cr.
An introduction to the major pathologies of the peripheral and auditory and vestibular systems. The course will include dysfunction arising from genetic factors, disease, and trauma, with an emphasis applied to presenting signs/symptoms, interpretation of laboratory / imaging results, and medical / surgical interventions. Second term. Prerequisite: ORLG 240.

MAUD 212 Special Topics 1.0; 1 cr.
This course is designed to address traditional or emerging topics in the field of audiology. The course will explore, in depth, a comparatively narrow subject which may be topical or of special interest to undergraduate students in medical audiology sciences program. Annually.

MAUD 213 Environmental Audiology 3.0; 3 cr.
This course covers the effects of noise on health and society, hearing conservation programs, and noise measurement. Industrial, school, military, and social settings will be addressed. Annually.

ORLG 220 Screening Procedures Laboratory 1.9; 3 cr.
Beginning level audiologic practicum. Students will complete 90+ hours of clinical training under direct supervision. Clinical activities will include case history intake, biological calibration of equipment, otoscopic examinations, hearing screenings (pure tone, AABR, OAE), basic immittance testing. A weekly class meeting is held to discuss clinical cases and develop student report-writing skills. Infection control will also be discussed. First term. Pre/corequisites: MAUD 200 and MAUD 202.

ORLG 230 Basic Clinical Procedures Laboratory 1.15; 5 cr.
150+ hours of clinically-supervised direct patient care. Students will be expected to perform and interpret basic behavioral and electrophysiological tests. A weekly class meeting is held to discuss clinical decision making and report writing. Management of unique populations will be covered (tinnitus, hyperacusis, malingering, ototoxicity). Second term. Prerequisite: ORLG 220; corequisite: MAUD 207.

ORLG 240 Advanced Clinical Procedures Laboratory 1.15; 5 cr.
50+ hours of clinically-supervised direct patient care. Continued development of audiological assessment and intervention techniques for children and adults. Clinicians will be expected to administer and interpret balance/vestibular tests and electrophysiological tests, conduct electroacoustic assessment of hearing aids, make hearing aid adjustments based on probe microphone and behavioral test results, and assist with the cochlear implant program. Under direct supervision. A weekly class meeting is held to discuss clinical decision making and report writing. First term. Prerequisite: ORLG 230, corequisite MAUD 206 and 209.

ORLG 250 Comprehensive Practice Laboratory 1.15; 5 cr.
150+ hours of clinically-supervised direct patient care. Clinicians will practice all aspects of audiological care, with greater independence. A weekly class meeting is held to discuss professional issues in audiology, including private practice management, coding and reimbursement, marketing and sales, malpractice, credentialing, and ethics and clinical integrity in the practice of the profession of audiology. Second term. Prerequisite: ORLG 240.

Bachelor of Science in Medical Imaging Sciences

Coordinator and Assistant Professor	Hannoun, Salem
Visiting Assistant Professor	Makki, Malek
Clinical Educator	Abbas, Saly

This program is jointly run with the Department of Diagnostic Radiology at the Faculty of Medicine.

Mission

The mission of the medical imaging sciences (MIS) program is to provide students with excellence in imaging education. MIS aims to produce academically and clinically competent radiographers who will become patient advocates in their field and perform their duties with empathy and respect towards all patients.

Promotion

For promotion from year I to year II, students must complete a minimum of 39 credits. For promotion from year II to year III, students must complete a minimum of 70 credits.

Residency Requirements

As per AUB policy, students must earn their final forty-five (45) credits while in residence (refer to the General University Academic Information section). Given the structured curriculum, nature of the practical training, and course offerings, students of the Faculty of Health Sciences must meet the following minimum residency requirements. The minimum number of credits is 45. However, the maximum number of credits to be taken will depend on course equivalency.

Students pursuing the medical imaging sciences major are required to register for four regular terms.

Graduation Requirements

To be eligible for graduation with the degree of bachelor of science in medical imaging sciences, students must:

- Pass a minimum of 102 credit hours after freshman science class or its equivalent.
- Achieve a total cumulative GPA of 2.3.
- Achieve a cumulative GPA of 2.3 in the major field of study.

Curriculum for BS in Medical Imaging Sciences

Course Number	Course Title	Lecture Hrs./ Week	Lab Hrs./ Week	Credits
Fall 1				
MIMG 201	Introduction to MIS	2	0	2
ENGL 203	Academic English	3	0	3
ARAB 2xx	Understanding Communication (Arabic)	3	0	3
	Cultures and Histories (History of Ideas)	3	0	3
HUMR 246	Human Morphology	2	2	3
PSYC 201	Introduction to Psychological Sciences	3	0	3
Term Credit Total				**17**

Spring 1				
MIMG 206	Principle of Imaging I	3	0	3
MIMG 206L	Principle of Imaging I Laboratory	0	3	2
ENGL 204	Advanced Academic English	3	0	3
NURS 201	Introduction to Nursing Practice	1	3	2
PHYL 246	Physiology for Nursing Degree Students and Undergraduates	4	0	4
PHYS 205	Modern Physics	3	0	3
Term Credit Total				**17**

Summer 1				
MIMG 202	Imaging Physics	3	0	3
DGRG 220	Clinical Practicum I	0	8	2
Term Credit Total				**5**

Fall 2				
MIMG 203	Medical Imaging Equipment I	3	0	3
MIMG 207	Principle of Imaging II	3	0	3
EPBS 203	Epidemiology and Biostatistics	2	2	3
	Cultures and Histories Elective	3	0	3
DGRG 230	Clinical Practicum II	0	12	4
HPCH 240	Workshop in Interpersonal Communication for Health Professionals	0	10	0
Term Credit Total				**16**

Spring 2				
MIMG 204	Medical Imaging Equipment II	3	0	3
MIMG 205	Introduction to Principles of Diseases	3	0	3
MIMG 208	Sectional Anatomy	3	0	3
EPBS 213	Survey Methods	1	2	2
DGRG 240	Clinical Practicum III	0	8	2
Term Credit Total				**13**

Summer 2				
DGRG 250	Clinical Practicum IV	0	8	2
Term Credit Total				**2**

Fall 3				
MIMG 210A	Research Project I	3	0	0
HMPD 204	Introduction to Health Services Administration	3	0	3
PHIL 205	Bio Medical Ethics	3	0	3
	Societies and Individuals Elective	3	0	3
HPCH 205	Introduction to Public Health	3	0	3
DGRG 260	Clinical Practicum V	0	12	4
Term Credit Total				**16**

Spring 3				
MIMG 209	Quality Management and Image Analysis	3	0	3
MIMG 210B	Research Project II	3	0	3
	Cultures and Histories Elective	3	0	3
	Free Elective	3	0	3
DGRG 270	Clinical Practicum VI	0	12	4
Term Credit Total				**16**

Total Credits	**102**

Course Descriptions

MIMG 201 Introduction to Medical Imaging 2.0; 2 cr.
This course introduces students to the foundations of medical imaging with focus on image production and, factors affecting mage quality. Students learn the essential physics of electromagnetic radiation, characteristics of x-rays, sectional anatomy, and the function of common imaging equipment. In addition, this course provides an overview of the medical imaging sciences profession, patient care principles, the structure of the health-care system, and the ethical and legal responsibilities expected in clinical settings. First term.

MIMG 202 Imaging Physics 3.0; 3 cr.
This is an introductory physics course that builds the scientific foundation needed for understanding how medical imaging systems operate. This course covers principles of radioactive decay, radiobiology, radiation protection, and the concepts of exposure and dose. Students learn the function of x-ray circuitry, the x-ray tube, and the processes governing x-ray production and interaction with matter. Summer. Prerequisite: MIMG 201; Pre/corequisite: PHYS 205 or PHYS 206.

MIMG 203 Medical Imaging Equipment I 3.0; 3 cr.
This course introduces students to the main equipment and technical factors used in radiographic imaging. It covers the operation of the x-ray tube and the influence of exposure settings and patient characteristics on image quality. Students learn about digital image receptors, the steps of image production, processing, and post-processing, common causes/sources of artifacts as well as basic concepts of quality control, and the proper use of automatic exposure systems. First term. Prerequisite: MIMG 202.

MIMG 204 Medical Imaging Equipment II 3.0; 3 cr.
This course introduces students to the equipment and basic operating principles of the major medical imaging modalities used in clinical practice. The course covers fluoroscopy, mammography, ultrasound, MRI, nuclear medicine, PET, and CT, with a focus on how each system generates images and the main factors influencing image quality. Second term. Prerequisite: MIMG 203.

MIMG 205 Introduction to Principles of Diseases 3.0; 3 cr.
This course connects anatomy, pathology, and image appearance. Students learn the detection of pathologic conditions using medical imaging. The content of this course covers pathologic conditions affecting the skeletal, respiratory, gastrointestinal, hepatobiliary, urinary, reproductive, circulatory, nervous, and endocrine systems while highlighting the impact of diseases on adjustments of imaging techniques. Second term. Prerequisite: PHYL 246 or BIOL 202.

MIMG 206 Principle of Imaging I 3.0; 3 cr.
This course introduces students to the foundational principles of radiographic procedures. It covers essential positioning concepts as well as radiographic anatomy and standard projections for the upper and lower limbs, shoulder girdle, spine, thorax, abdomen, and pelvic girdle. Emphasis is placed on proper patient alignment, radiation protection, technique selection, and basic image critique. Second term. Prerequisites: MIMG 201and (HUMR 246 or BIOL 201).

MIMG 206L Principle of Imaging I Laboratory 1.2; 2 cr.
This is a foundation laboratory course providing hands-on practice on positioning principles in a simulated clinical environment. MIMG 206L focuses on patient positioning, equipment manipulation, exposure selection, and radiation protection. Students apply positioning techniques of the upper and lower limbs, shoulder girdle, spine, thorax, abdomen, and pelvic girdle. Image evaluation is introduced through the assessment of centering, anatomy, image quality, and common positioning errors. Second term. Corequisite: MIMG 206.

MIMG 207 Principle of Imaging II 3.0; 3 cr.
This course builds on foundational imaging skills by introducing students to radiographic and interventional procedures applied to all body systems. Students learn patient preparation, equipment setup, required projections, and the use of contrast media for each examination. The course also highlights the common clinical indications, and key radiological signs relevant to these procedures. First term. Prerequisites: MIMG 206 and MIMG 206L.

MIMG 208 Sectional Anatomy 3.0; 3 cr.
This course introduces students to human anatomy as visualized in cross-section on CT and MRI. Students study the major anatomical regions, including the head, neck, thorax, abdomen, pelvis, and extremities, while learning to recognize structures in the axial, sagittal, and coronal planes. Emphasis is placed on spatial relationships, anatomical landmarks, and the appearance of normal anatomy on sectional images. Second term. Prerequisite: HUMR 246 or BIOL 201.

MIMG 209 Quality Management and Image Analysis 3.0; 3 cr.
This course introduces students to quality management and quality control of imaging systems as well as image analysis while aligning with the daily workflow of diagnostic radiology departments. Students study how imaging services are organized, patient safety maintained, and quality improvement strategies used to enhance efficiency and care during the implementation of different imaging procedures using radiographic, CT, MRI, ultrasound, and nuclear medicine equipment. Second term. Prerequisites: MIMG 204 and MIMG 207.

MIMG 210 Research Project; Offered as MIMG 210A: Research Project I and MIMG 210B: Research Project II

MIMG 210 is a research project offered as MIMG 210A (first term) and MIMG 210B (second term). It introduces students to the fundamentals of research in medical imaging sciences where they learn how to search for and cite scientific literature, understand basic study designs used in imaging research as well as interpretation of imaging data. This course also guides students on the principles of preparation of IRB proposals. Seminar sessions and group activities help students build practical skills in academic writing, critical appraisal of published imaging data as well as presentation skills.

MIMG 210A Research Project I 0 cr.

Research Project I. Prerequisites: EPBS 203 and EPBS 213.

MIMG 210B Research Project II 3 cr.

Prerequisite: MIMG 210A.

DGRG 220 Clinical Practicum I 0.12; 2 cr.

This is a clinical training course introducing students to professional practice and patient care skills across several imaging modalities. Students will apply entry-level competencies in radiation safety in general radiography, fluoroscopy/interventional imaging, computed tomography (CT), mammography, nuclear medicine/PET, ultrasound, and magnetic resonance imaging (MRI). In addition, students will be introduced to on site communication skills for patient care. Summer. Prerequisites: MIMG 201, MIMG 206, and MIMG 206L.

DGRG 230 Clinical Practicum II 0.12; 4 cr.

This course builds on acquired knowledge in DGRG 220 while expanding on the following training competencies and skills: professional practice, patient care, radiation safety, infection control, and equipment manipulation across major imaging modalities including general radiography, fluoroscopy/interventional imaging, computed tomography (CT), mammography, nuclear medicine/PET, ultrasound, and MRI. First term. Prerequisite: DGRG 220.

DGRG 240 Clinical Practicum III 0.8; 2 cr.

This clinical practicum strengthens all the clinical skills mentioned in previous DGRG courses (i.e., students rotate through all modalities previously stated) in addition to the introduction of contrast media administration and positioning techniques. Second term. Prerequisite: DGRG 230.

DGRG 250 Clinical Practicum IV 0.12; 2 cr.

This course allows students to perform medical imaging procedures with direct patient care. Summer. Prerequisite: DGRG 240.

DGRG 260 Clinical Practicum V 0.12; 4 cr.

This clinical training course expands on acquired skills in DGRG 250; in addition to introduction to image analysis. First term. Prerequisite: DGRG 250.

DGRG 270 Clinical Practicum VI 0.12; 4 cr.

This clinical training course culminates all clinical imaging competencies. Students will independently perform and interpret imaging data. Second term. Prerequisite: DGRG 260.

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (9)	Understanding the World (7), Quantitative Reasoning (5)	Major Courses (26+ 2+3+18)	Other required courses (11)	Community-Engaged Learning (3)
Lecture Course (9+12 +9+7 +3+26 +11+3)	Required Arabic Course: (3) Required English Courses: ENGL 203(3), 204(3)	Cultures and Histories (9) Phil 205 (3)	PSYC 201(3) HMPD 204 (3) Elective (3)	PHYL 246(4) PHYS 205(3) EPBS 203(3) EPBS 213(2)	MIMG 201(2), 202(3), 203(3), 204(3), 205(3), 206(3), 207(3), 208(3), 209(3)	HUMR 246 (3) NURS 201 (2) Free Elective (3) HPCH 203 (3)	HMPD 204 (3)
Lab (1+2)				EPBS 203(3)	MIMG 206L (2)		
Research Project (1+3)				EPBS 213(2)	MIMG 210A (0), MIMG 210B (3)		
Practical Training (18)					DGRG 220(2), 230(4), 240(2), 250(2), 260(4), 270(4)		
Workshop(0)						HPCH 240	

Bachelor of Science in Medical Laboratory Sciences

Coordinator	Melhem, Nada M.
Professor	Melhem, Nada M.
Associate Professor	Haddad, Nabil
Lecturer	Bou Hamdan, Mirna
Instructors	Khatib, Rolla; Lababidi, Maya

This program is jointly run with the Department of Pathology and Laboratory Medicine at the Faculty of Medicine.

Mission

The medical laboratory sciences (MLS) program graduates committed healthcare professionals to serve and improve the health needs of individuals and communities. Our graduates are highly skilled professionals who perform analytical tests on blood, tissue, and body fluids to provide laboratory information for the detection, diagnosis, and treatment of diseases. Moreover, our degree guarantees immediate career opportunities and constitutes the foundation for advanced graduate studies in medicine, basic sciences, and public health.

Promotion

For promotion from year I to year II, students must complete a minimum of 31 credits. For promotion from year II to year III, students must complete a minimum of 70 credits.

Residency Requirements

As per AUB policy, students must earn their final forty-five (45) credits while in residence (refer to the General University Academic Information section). Given the structured curriculum, nature of the practical training, and course offerings, students of the Faculty of Health Sciences must meet the following minimum residency requirements. The minimum number of credits is 45. However, the maximum number of credits to be taken will depend on course equivalency.

Students pursuing the medical laboratory sciences major are required to register for four regular terms.

Graduation Requirements

To be eligible for graduation with the degree of bachelor of science in medical laboratory sciences, students must:

- Pass a minimum of 103 credit hours after freshman science class or its equivalent.
- Achieve a total cumulative GPA of 2.3.
- Achieve a cumulative GPA of 2.3 in the major field of study (LABM and MLSP courses).

Curriculum for BS in Medical Laboratory Sciences

Course Number	Course Title	Lecture Hrs./ Week	Lab Hrs./ Week	Credits
Fall 1				
BIOL 201	General Biology I	3	3	4
CHEM 208	Brief Survey of Organic Chemistry	3	0	3
CHEM 209	Introduction Organic Laboratory	1	4	2
ENGL 203	Academic English	3	0	3
	Cultures and Histories (History of Ideas)	3	0	3
Term Credit Total				**15**

Spring 1				
ARAB 2xx	Understanding Communication Arabic	3	0	3
BIOC 255	Biochemistry for MLSP	3	0	3
ENGL 204	Advanced Academic English	3	0	3
PHYL 246	Physiology for Nursing Degree Students and Undergraduates	5	0	4
	Cultures and Histories Elective	3	0	3
Term Credit Total				**16**

Fall 2				
LABM 201	Clinical Chemistry I	2	0	2
MLSP 201	Clinical Hematology I	3	2	3
MLSP 203	General Microbiology	2	3	3
MLSP 207	Immunology and Blood Banking	2	0	2
MLSP 208	General and Diagnostic Virology	2	0	2
HPCH 240	Workshop in Interpersonal Communication for Health Professionals	0	10	0
	Societies and Individuals Elective	3	0	3
	Cultures and Histories Elective	3	0	3
Term Credit Total				**18**

Spring 2				
LABM 202	Clinical Chemistry II	3	0	3
LABM 210	Cytology and Histological Techniques	2	1	2
MBIM 223	Parasitology for MLS students	2	2	4
MLSP 202	Clinical Hematology II	3	2	3
MLSP 204	Systematic Bacteriology	3	4.5	4
MLSP 259	Diagnostic Serology	1	0	1
Term Credit Total				**17**

Summer 2				
	Practical Training in Laboratory Medicine	-	-	4
Term Credit Total				**4**

Fall 3				
EPBS 203	Epidemiology and Biostatistics	2	2	3
HMPD 204	Introduction to Health Services Administration	3	0	3
LABM 233	Genetics and Molecular Biology	2	0	2
LABM 235	Medical Mycology	1	0	1
	Practical Training in Laboratory Medicine	-	-	8
Term Credit Total				**17**

Spring 3				
PHIL 205	Bio-Medical Ethics	3	0	3
HPCH 205	Introduction to Public Health	3	0	3
LABM 231	Clinical Laboratory Quality Systems	1	0	1
MLSP 211	Seminar	1	0	1
	Practical Training in Laboratory Medicine	-	-	8
Term Credit Total				**16**

Total Credits	**103**

Practical Training in Laboratory Medicine

The practical training in laboratory medicine covers practical experience and application of theoretical knowledge in the following areas of laboratory medicine for the credits indicated below:

Course Number	Course Title	Credits
LABM 220	Clinical Chemistry and Endocrinology	4
LABM 230	Clinical Hematology and Reception	4
LABM 240	Clinical Microbiology	4
LABM 250	Clinical Parasitology and Urinalysis	2
LABM 260	Serology	2
LABM 270	Blood Banking	2
LABM 280	Cytogenetics, Molecular Diagnosis, and Histotechniques	2

Course Descriptions

MLSP 201 Clinical Hematology I 3.2; 3 cr.
This course is intended to introduce students to fundamental concepts in hematology including normal physiology of blood, development of blood cell elements in the erythrocytic, leukocytic and megakaryocytic cell lines as well as blood cell disorders, with a special emphasis on anemias. The course covers the different causes of anemias and prepares students for the diagnosis of the different types of anemia based on laboratory findings. It is based on lectures, discussions, demonstrations, and case studies. Throughout the course, the lectures will be aligned with laboratory sessions introducing students to the basics of hematology, including practical techniques such as blood smear preparation and staining, microscopic examination of blood cells, blood film inspection as well as identification of anemias based on laboratory findings. Prerequisite: BIOL 201. First term.

MLSP 202 Clinical Hematology II 3.2; 3 cr.
This course is intended to introduce students to the various white blood cell anomalies, including numerical and morphologic abnormalities of cells. In addition, students are introduced to the major types of leukemia and lymphoma as well as to the various tools used in the diagnosis of these malignancies, including morphologic criteria, cytochemical stains, immunophenotyping and the chromosomal abnormalities associated with these neoplasms. Throughout the course, laboratory sessions will complement the lectures, providing hands-on training in identifying white blood cell anomalies and diagnosing leukemias using laboratory techniques and findings. Prerequisite: MLSP 201. Second term.

MLSP 203 General Microbiology 2.4; 3 cr.
This course introduces students to the microbial world with emphasis on bacterial taxonomy, host-pathogen interactions, bacterial growth, bacterial genetics as well as antimicrobial susceptibility testing and concepts of bacterial resistance. Throughout the course, the lectures will be aligned with laboratory sessions introducing students to basics of bacterial identification including microscopy, bacterial culture, and susceptibility testing. Prerequisite: BIOL 201. First term.

MLSP 204 Systematic Bacteriology 3.4; 4 cr.
This course is designed to introduce students to clinically significant bacteria, their pathogenesis, the disease(s) they cause, clinical signs and symptoms, treatment and preventive therapies and vaccines. This course offers a laboratory component whereby students perform hands-on sessions addressing the laboratory diagnosis of clinically significant bacteria (microscopy, bacterial isolation, biochemical profiling as well as antimicrobial susceptibility testing). Prerequisite: MLSP 203. Second term.

MLSP 207 Immunology and Blood Banking 2.0; 2 cr.
This is an introductory course in Immunology, Blood Banking and Transfusion Medicine. The course is designed to provide basic knowledge of the immune response and its involvement in health and disease. It introduces students to the basic immunological principles including innate and acquired immunity, humoral versus cell mediated immune responses. In addition, this course advances the basic concepts of blood banking including blood-grouping and antibody systems, donor screening and collection of blood components needed for transfusions among others. Prerequisite: BIOL 201. First term.

MLSP 208 General and Diagnostic Virology 2.0; 2 cr.
This course introduces students to the major virus families and the respective representative viruses of clinical importance. During the course, students will be introduced to the epidemiology, pathogenesis, modes of transmission, laboratory identification and prevention and control measures of pathogenic viruses. Prerequisite: BIOL 201. First term.

MLSP 211 Seminar 1.0; 1 cr.
This course is a one-credit course offered to Medical Laboratory Sciences (MLS) Students during their senior year. This course is designed to train students to search for, read and understand published scientific papers as well as concepts of ethical conduct of research. Moreover, students will be trained to present in class and critically analyze original manuscripts. The presenting student(s) will be guided in class and in one-to-one meetings to learn how to interpret, defend and criticize the published work as well as respond to questions and inquiries. Second term.

MLSP 259 Diagnostic Serology 1.0; 1 cr.
This course introduces students to diagnostic serology testing. Students will learn the principles and purposes of antigen-antibody reactions. Special emphasis will be placed on the study of specific serological procedures used for the diagnosis of diseases. Prerequisite: MLSP 207. Second term.

LABM 201 Clinical Chemistry I 2.0; 2 cr. and LABM 202 Clinical Chemistry II 3.0; 3 cr.
Clinical Chemistry is covered in two courses: LABM 201 in first term and LABM 202 in second term. Clinical Chemistry courses I and II are designed to acquaint students with fundamentals of clinical chemistry, including basic physiological and biochemical processes, instrumentation, principles of analytical procedures, and methods used for reliable determination of clinical analytes. Correlation of laboratory results with clinical manifestation is also an integral part of these courses. These courses cover all aspects of routine clinical chemistry such as carbohydrates, electrolytes, acid-base balance, blood gases, nitrogen metabolites, proteins, enzymes, lipids and lipoproteins, calcium metabolism and liver function. LABM 202 also covers some advanced clinical chemistry topics like hormones, therapeutic drug monitoring, toxicology; and specialized techniques like chromatography (HPLC, GC/MS and so on). Prerequisite of LABM 202 Clinical Chemistry II is LABM 201 Clinical Chemistry I.

LABM 210 Cytology and Histological Techniques 24.16; 2 cr.
A course that includes a series of lectures, demonstrations and hands-on training on cell biology, a review of normal histology of various human organs, examples of pathological changes, lectures, and hands-on training on techniques of tissue handling, preparation, staining and studying of sections and smears for cytological material. Department of Anatomy, Cell Biology, and Physiological Sciences. Second term.

LABM 220 Clinical Chemistry and Endocrinology 0.128; 4 cr.
Practical experience in Clinical Chemistry that includes two parts. The applied manual procedures give students a thorough understanding of test principles and basic laboratory preparations and measurements. The clinical laboratory rotation covers all areas from specimen handling to an overview of automated clinical chemistry analyzers and other specialized areas like electrophoresis and amino acid analysis as well as patient test management. Prerequisites: LABM 201 and LABM 202.

LABM 230 Clinical Hematology and Phlebotomy 0.128; 4 cr.
This course provides basic information on how to recognize and diagnose hematological conditions that are frequently observed in the laboratory and how to correlate various laboratory test findings with their associated clinical conditions. It will expose students to review articles and case studies in hematology with specific information on various hematological disorders. The theoretical part of the course runs simultaneously with the clinical training taking place at the AUB-Medical Center, Hematology section to allow the coordination of theoretical information with the practicum. Prerequisites: MLSP 201 and MLSP 202.

LABM 231 Clinical Laboratory Quality Systems 1 cr.
This course is intended to give medical laboratory Sciences students a thorough understanding of the quality systems used for implementation of total quality management in the clinical laboratories. The course covers all the basic elements and tools required to implement the quality system essentials across all phases of the laboratory workflow: preanalytical, analytical, postanalytical. In addition, it will include focused lectures related to quality and safety standards required in specialized areas such as blood bank, clinical microbiology, and molecular diagnostics. Practical examples from the laboratory setting will be part and parcel of the lectures to help students relate theory to practice.

LABM 233 Genetics and Molecular Biology 2.0; 2 cr.
This course is an introduction to human genetics, comprising the structure and function of DNA and the classification of genetic disorders, as well as the application of laboratory genetic testing in the clinical differential diagnosis of a variety of disorders. Diagnostic techniques in human genetics (cytogenetics, biochemical and molecular) will be covered and their applications in pathology, oncology, immunology, and microbiology will be reviewed. In addition, there will be learning of performing polymerase chain reaction (PCR) technique, real-time PCR, Sanger sequencing, and Next Generation Sequencing. First term.

LABM 235 Medical Mycology 1.0; 1 cr.
This course covers the different types of fungi and yeasts (e.g., Candida, Cryptococcus) and molds (e.g., dermatophytes, saprophytes, dimorphic). This course discusses their disease spectrum, mode of infection, growth requirements, and culture and non-culture methods of identification and diagnosis as well as antifungal drugs and susceptibility testing. First term.

LABM 240 Clinical Microbiology 3.20; 4 cr.
Students will be introduced to diagnostic procedures used in bacteriology by organ system This course will be offered in a series of short didactic refresher lectures, assigned readings and case-studies. The diagnostic procedures include up-to-date traditional and automated tools for the identification and diagnosis of bacterial infections. The theoretical part of the course is offered at FHS while clinical training takes place at the Bacteriology section, Department of Pathology and Laboratory Medicine at the American University of Beirut -Medical Center. Prerequisites: MLSP 203 and MLSP 204.

LABM 250 Clinical Parasitology and Urinalysis 0.64; 2 cr.
Practical experience covering conventional and automated approaches in clinical microscopy pertaining to parasitology, urinalysis, spermogram, occult blood, calprotectin lactoferrin, Sudan III fat in stool, RBC morphology, and use of different types of microscopic methods for diagnosing particulate material in synovial fluid and other body fluids. Prerequisite: MBIM 223.

LABM 260 Serology0.64; 2 cr.
Practical experience in clinical immunology and various automated and manual serodiagnostic techniques used for the diagnosis of infectious and non-infectious diseases. Prerequisite: MLSP 259.

LABM 270 Blood Banking 0.64; 2 cr.
This course introduces students to the various aspects of modern Blood Banking and Transfusion Medicine. Students will learn the theoretical and practical laboratory aspects of Blood Banking including: ABO, Rh and other blood group systems; handling donor and patient samples; infectious screening; and collection/preparation of blood/ blood components for transfusion administration. The course also covers adverse transfusion reactions, hemolytic disease of the newborn and fetus, as well as advanced Blood Bank procedures and quality management. Prerequisite: MLS 207.

LABM 280 Cytogenetics, Molecular Diagnostics, and Histotechniques 0.64; 2 cr.
Practical experience in cytogenetics, molecular diagnostics and histotechniques. Prerequisite: LABM 210.

MBIM 223 Parasitology for MLSP Students 39.39; 4 cr.
A course of diagnostic parasitology. Second term.

Modes of Analysis	Understanding Communication - English and Arabic (9)	Cultures and Histories (9), Human Values (3)	Societies and Individuals (6)	Understanding the World (11), Quantitative Reasoning (3)	Major Courses (34+20)	Other required courses (6)	Community-Engaged Learning (3)
Lecture Course (9+12+6 +12+30+6)	Required Arabic Course: (3) Required English Courses: ENGL 203(3), 204(3)	Cultures and Histories electives (9) PHIL 205 (3)	HMPD 204 (3) Elective (3)	BIOL 201(4) CHEM 208(3) PHYL 246(4) EPBS 203(3)	MLSP 201(3), 202(3), 203(3), 204(4), 207(2), 208(2), 259(1) LABM 201(2), 202(3), 210(2), 231(1), 233(2), 235(1) MBIM 223(4)	BIOC 255(3) HPCH 203 (3)	HMPD 204 (3)
Lab (4+4)				BIOL 201(4) CHEM 209(2) EPBS 203(3)	MLSP 203(3), MLSP 204(4), MBIM 223(4)		
Seminar (1)					MLSP 211(1)		
Practical Training (20)					LABM 220(4), 230(4), 240(4), 250(2), 260(2), 270(2), 280(2)		
Workshop(0)						HPCH 240	

MBIM 223 is a major required course in the discipline. However, it is not counted in the major average. Only LABM and MLSP courses count towards major average.

Department of Epidemiology and Biostatistics

Chairperson	Ghandour, Lilian
Professors	Chaaya, Monique; DeJong, Jocelyn; Ghandour, Lilian; Jaffa, Miran; Sibai, Abla
Professor of Public Health Practice	Adib, Salim
Assistant Professors	El Asmar, Khalil; Mumtaz, Ghina
Assistant Professor of Public Health Practice	McCall, Stephen
Instructor of Public Health Practice	Akl, Christelle; Saad, Ghada
Part-time Instructor	Kabalan, Mayssan
Affiliates	El Bejjani, Martine; Tamim, Hani; Fahme, Sasha

The department offers undergraduate courses in epidemiology and biostatistics and contributes to courses catered to major and minor programs.

Course Descriptions

EPBS 203 Epidemiology and Biostatistics 2.2; 3 cr.
An introductory course offered to undergraduates covering the basic principles of epidemiology and biostatistics. This course introduces students to the types and sources of epidemiological data, common measures of morbidity and mortality, the design and analysis of various epidemiological study designs and the main biases and issues that threaten data validity. The course also covers exploratory data analysis, and introduces students to statistical techniques commonly used in the analysis of epidemiological data. The students will learn how to run basic statistical analyses on SPSS and interpret statistical output. The lab sessions for the epidemiology sessions will be in the form of discussion of practice questions or articles, and computer lab sessions will mainly introduce students to statistical analysis using the statistical package SPSS.

EPBS 203A Biases in Epidemiology 1.0; 1 cr.
This course is open only to undergraduate students enrolled in the environmental health program. In this course, the students will be further exposed to all potential types and sources of bias in epidemiological research and ways to avoid them. These concepts will be illustrated via the discussion of weekly readings. The class will engage the students in team activities and group discussion. Corequisite: EPBS 203.

EPBS 213 Survey Methods 1.2; 2 cr.
A course that provides students with a general overview of the principles and stages of survey research. Using secondary data, students will learn to review and synthesize the literature relevant to a particular research question, analyze and summarize the data, as well as present the findings in an oral and written format. Students will also have the opportunity to develop short questionnaires, sample respondents, collect primary data, and enter data on SPSS as part of their course assignments. Throughout the course, students will learn of the main ethical issues that arise through the different research stages. Prerequisites: EPBS 203 or consent of instructor.

Department of Health Management and Policy

Chairperson	Kassak, Kassem
Professors	El-Jardali, Fadi; Saleh, Shadi
Associate Professor of Public Health Practice	Kassak, Kassem
Instructor	Germani, Aline
Instructors of Public Health Practice	Abou Samra, Clara; Bou Karroum, Lama; Fadlallah, Racha; Jamal, Diana
Part-time Lecturer	Kahhale, Joseph
Part-time Instructors	Chaya, Rima; Kanaan, Nivine

Departmental courses are designed to introduce students to the principles and practices in the field of health management and policy, with an emphasis on managerial functioning in healthcare organizations. The department offers a few undergraduate courses in health administration and contributes to courses catered to major and minor programs.

Course Descriptions

HMPD 204 Introduction to Health Services Administration 3.0; 3 cr.
This course offers an in-depth examination of the diverse components that form a health system. It provides an opportunity to describe and analyze how provider settings, healthcare personnel, financial resources, technology, and the government interact to meet and serve the healthcare needs of populations. This course includes a “service learning” component through which students will engage with a predetermined organization to identify and address a public health problem. This opportunity will allow students to “share” and “receive” knowledge and expertise leading to enhanced learning among students and benefit to the chosen organization. This course is based on Service Learning (SL), a pedagogical approach that combines academic instruction, meaningful service to the community and critical reflective thinking to enhance student learning and social responsibility. Not open to sophomores and first year students in all faculties.

Center for Public Health Practice (CPHP)

Director	Germani, Aline
Instructors of Public Health Practice	Kalot, Joumana; Najem, Martine

The Center for Public Health Practice advances evidence-based public health practice in Lebanon and the region. It creates opportunities for innovation and engagement that enrich the academic experience of students and faculty. The center nurtures the culture of collective responsibility, partnership building, diversity, and social justice.

Within the framework of its mission, CPHP has adopted the following strategic goals:

- Generate and disseminate knowledge to inform public health practice, research, policy, and curriculum.
- Respond to public health priorities and emerging crisis through innovative programming and sustained partnerships for health and development.
- Lead the field of workforce development in public health locally and regionally.
- Establish platforms for meaningful community engagement of FHS students, faculty, and staff.

CPHP collaborates closely with a variety of partners including national, regional, and international entities such as academic institutions, ministries, UN agencies, NGOs, municipalities, and local communities in Lebanon and throughout the Arab world.

CPHP Tracks

- Training and Workforce Development; in person and e-courses
- Evaluation of Programs/Implementation Research
- Designing Health and Development Programs
- Documenting Best Practices/Knowledge Dissemination
- Developing Resource Material
- Organizing and Delivering Courses for Students
- Creating joint courses and programs with other faculties and universities

CPHP Themes

Youth development, refugee health, sexual and reproductive health, maternal and child health, ageing, health communication, school health and environment, tobacco, child protection and child rights, gender, and gender-based violence, NGO management, among others.

CPHP Reach

Egypt, Iraq, Jordan, Kuwait, Libya, Oman, Syria, Tunisia, Lebanon.

Center for Research on Population and Health (CRPH)

Director	McCall, Stephen
Assistant Research Professor	Hajj, Samar
Instructors of Public Health Practice	Akl, Christelle; Saad, Ghada
Affiliates	Fahme, Sasha; Abi Zeid, Berthe; Jamaluddine, Zeina

The Center for Research on Population and Health (CRPH) leads and supports methodologically robust research at the intersection of population and health to improve the health and well-being of populations in Lebanon, the Arab region and globally.

CRPH is a hub for high-impact population and health research. We invest in people through training and capacity building and provide infrastructure for the conduct of rigorous research.

The center promotes interdisciplinary research and innovative approaches to research, and fosters exchanges and collaborations among AUB faculty, graduate students, and colleagues in the Arab region and beyond through conferences, workshops, and seminars.

The center hosts MPH practicum students, MS thesis projects and provides students and researchers at FHS with support in survey development and data management and analyses; access to regional data sets; and support for new areas of research. CRPH also hosts researchers who wish to visit the Faculty of Health Sciences with the goal of collaborating with FHS faculty or of pursuing innovative research or writing activities.

Knowledge to Policy Center (K2P)

Director	El-Jardali, Fadi
Instructors of Public Health Practice	Abou Samra, Clara; Bou Karroum, Lama; Fadlallah, Racha; Jamal, Diana

Knowledge to Policy (K2P) Center draws on an unparalleled breadth of synthesized evidence and context-specific knowledge by producing briefs and conducting policy dialogues to impact policy agendas and action. K2P produces high quality policy products to help policymakers and stakeholders have the clearest understanding of the most important messages, options, and recommendations to address pressing health and social system problems.

K2P harnesses the best available evidence on pressing health and social systems priorities; convenes concerned policy makers, stakeholders, thinkers, researchers, and doers; and prepares leaders to meet pressing health issues by building their capacity in public policymaking.

The K2P team comprises the director, an assistant director for operations, senior scientific officer, research manager, program manager, communication officer, project coordinators, and several specialists.

K2P Functions and Activities

- Inform the production, packaging and sharing of research data and evidence in an objective manner and based on current and emerging policymaking priorities.
- Utilize a rapid response system to inform policymaking in an objective manner using the best available evidence that can be prepared and packaged within time and resource constraints.
- Conduct evidence informed advocacy and support implementation in policy and practice.
- Conduct policy tracing research and develop models for knowledge translation that are context-specific, culturally appropriate, relevant, and effective for the region.
- Support research networks, civil society, researchers, policy makers and the media.
- Engage with citizens to enhance their involvement in the decision and policymaking process on high priority issues.
- Build the capacity of researchers, policymakers and media in knowledge translation (KT) and evidence communication methods to influence policy, practice, and action.
- K2P develops a diverse set of KT products including K2P Policy Briefs, K2P Briefing Notes, K2P Rapid Response, K2P Evidence Summaries, K2P Dialogue Summaries, K2P Policy Memo, K2P Citizens Consultation Summary, and K2P Media Bites. The center also published the K2P Crisis Chronicles, the K2Parliament Series and the K2P COVID19 Series Initiative in response to pressing national and global policy priorities, The center also launched the K2P Mentorship Program that supports research and policy organizations in the six regions of the World Health Organization (WHO).

Collaborations

K2P collaborates with national and international partners including Center for Systematic Reviews on Health Policy and Systems Research (SPARK) and Issam Fares Institute for Public Policy and International Affairs (IFI) at the American University of Beirut; and McMaster Health Forum in Canada and the Evidence Informed Policy Network (EVIPNet) at the World Health Organization (WHO) in Geneva.

WHO Collaborating Center for Evidence-Informed Policy and Practice

Since 2015, the World Health Organization (WHO) has designated K2P Center thrice as a WHO Collaborating Center for Evidence-Informed Policy and Practice. This designation, which has been in effect for three consecutive four-year term, is unique since the K2P Center is the only WHO Collaborating Center for Evidence-Informed Policy and Practice in Lebanon and the region, and is the second center of its kind globally after McMaster Health Forum in Canada.

The Center for Systematic Reviews on Health Policy and Systems Research (SPARK)

Co-Directors	El-Jardali, Fadi; Akl, Elie

The Center for Systematic Reviews on Health Policy and Systems Research (SPARK) at the American University of Beirut (AUB) is a joint collaboration between the Faculty of Health Sciences (FHS) and the Faculty of Medicine (FM). SPARK center was appointed as the General Secretariat of the Global Evidence Synthesis Initiative (GESI).

SPARK specializes in the production of high-quality and timely systematic reviews and rapid reviews that respond to health policy and systems research priority issues at the national and the regional level. SPARK also invests in developing individual and institutional capacity in the region in conducting systematic reviews and rapid reviews of health policy and systems research.

SPARK Activities

- Conduct priority setting exercises with policymakers and other stakeholders, researchers, and civil society to prioritize review topics on health policy and systems research.
- Produce timely systematic reviews and rapid reviews on prioritized topics and review questions.
- Hold national and regional capacity-building workshops to develop individual and institutional capacities in conducting different types of research evidence syntheses.
- Prepare SUPPORT summaries and hold deliberative dialogues to promote the uptake of evidence from systematic reviews and rapid reviews into policies.
- Contribute to the methodology of research synthesis and knowledge production.

SPARK develops a diverse set of products including systematic reviews, rapid reviews, scoping reviews, SUPPORT summaries, and evidence gap maps.

Collaborations

SPARK collaborates with the Knowledge to Policy (K2P) Center and the AUB GRADE Center at the American University of Beirut.

Rafic Hariri School of Nursing (HSON)

Undergraduate

Officers of the School

Fadlo R. Khuri	President of the University
Zaher Dawy	Provost
Samar Noureddine	Dean of the Rafic Hariri School of Nursing
Nuhad Yazbik-Dumit	Associate Dean for Academic Affairs and HSON Online Chair
Souha Fares	Associate Dean for Research
Angela Massouh	Convener Clinical Sciences
Gladys Honein	Convener Health Systems and Populations
Bradley Jon Tucker	Vice-Provost and Registrar
Antoine Sabbagh	Director of Admissions
Lokman Meho	University Librarian

Program Directors and Coordinators

Coordinator, PhD Program	Yazbik-Dumit, Nuhad
Coordinator, BSN Program	Dakessian Sailian, Silva
Coordinator, MSN Program	Younan, Lina
Director, Continuing Education and Offshore Programs	Massouh, Angela

School Administrative Support

Diana Chami	Executive and Financial Officer
Mira Abdallah	Student Services and Career Planning Officer
Layal Abi Jumaa	Administrative and Student Services Assistant
Abeer Hashem	Administrative Assistant
Nisrine Ghalayini	Administrative Officer

Joyce Naser	Skills and Simulation Lab Coordinator
Rabih Daher	Office Assistant
Maya Abou Saad	Academic Assistant
Maher Itani	Senior Service Delivery Manager
Toufic Karout	Senior Field and Remote Support Engineer
Salpy Naalbandian	Head of Saab Medical Library

Historical Background

The School of Nursing, founded in 1905, was the first nursing school in the Middle East. The five-year bachelor of science in nursing program, established in 1936, was replaced in 1964 by a four-year program leading to the degree of bachelor of science in nursing. Students entering the school as sophomores graduate in three calendar years. The RN-BSN program was reactivated and launched in 2003. The master of science in nursing (MSN) program was launched in 2003. The bachelor of science in nursing program (BSN) and the MSN program are registered by the Department of Education of New York State, HEGIS codes 1203.00 and 1203.10, respectively. The BSN and MSN programs are accredited by CCNE, the Commission on Collegiate Nursing Education, in the USA. The AUB School of Nursing is the first School of Nursing outside the US territories to be accredited by CCNE. The PhD program, HEGIS code 1203.12, was launched in the academic year 2018-19. Effective September 2018, Hariri School of Nursing became the seventh independent faculty at AUB.

Accreditation

The baccalaureate and master's nursing degree programs at the Hariri School of Nursing (HSON) are accredited by the Commission on Collegiate Nursing Education (CCNE) since 2007. HSON was the first nursing school outside US territories to have its BSN and MSN programs accredited in 2007. The programs are assessed by CCNE based on four standards: Mission and Governance, Institutional Commitment and Resources, Curriculum and Teaching and Learning Practices, and Assessment and Achievement of Program Outcomes. CCNE is officially recognized by the US Secretary of Education as a national autonomous accrediting agency, contributing to the improvement of the public's health, encouraging continuing self-assessment by nursing programs, and supporting continuing growth and improvement of nursing education. Being accredited by CCNE ensures the quality and integrity of baccalaureate and graduate programs at HSON, in addition to effective educational practices. The most recent accreditation renewal by CCNE for HSON was in 2022 for a period of 10 years till 2032.

Mission

The mission of the School of Nursing is to promote and maintain the highest educational standards of excellence, integrity, and professionalism in nursing, following the American model of nursing education and practice. The school aims to provide learning opportunities that will enable students to develop into competent nurses who, guided by ethical principles, respect cultural diversity while coordinating and delivering high-quality, compassionate nursing care in Lebanon and the region. The faculty believes education is an interactive process between faculty and students with both taking responsibility for active learning. The baccalaureate program, drawn primarily from the humanities, sciences, and caring disciplines, focuses on the use of nursing theory and research as a basis for practice. The master's program focuses on preparing nurses for advanced nursing practice roles and is based on the use and generation of research-based knowledge to guide practice. The PhD program in nursing science aims to provide rigorous training for research careers in nursing and healthcare. The program is intended to produce research scientists who will make significant and original contributions to nursing practice and healthcare delivery. Nursing students at AUB learn to think critically, develop professional attitudes and leadership skills, and appreciate the value of life-long learning and freedom of speech.

Vision

The Rafic Hariri School of Nursing aspires to become the leading school of nursing in Lebanon and the region, and nationally and internationally recognized for excellence in education, research, and service. The school is committed to offering cutting-edge, culturally relevant and internationally recognized graduate and undergraduate education, fostering life-long learning and scholarship, developing leaders in nursing and healthcare, and attracting a competent and culturally diverse student body.

Bachelor of Science in Nursing (BSN)

Admissions

The School of Nursing follows the admission policies and criteria of the university. For further details, refer to the Admissions section of this catalogue.

Generic BSN program

Students holding diplomas from a 12-year secondary school may gain admission to the School of Nursing as first year nursing students (see required courses at the freshman level). Freshman students wishing to transfer to the School of Nursing from AUB or another institution may gain admission, provided they complete the required freshman courses.

TS/LT-BSN

The curriculum is designed to permit the graduates of TS/LT in nursing to pursue the degree of bachelor of science in nursing as per the university entrance requirements. The time limit for completion of the program should not exceed six calendar years. A selected number of nursing courses may be validated if applicable.

Preferred requirement for admission to the program is one-year experience in addition to the university entrance requirement. Applicants should provide the TS/LT governmental exam certificate and license to practice nursing from the Ministry of Public Health. Candidates may be asked to have an interview with the program convener or a designated faculty member.

BT-BSN

According to the decree no. 855 dated 01/07/2015, issued by the Ministry of Education and Higher Education, holders of the technical baccalaureate (BT) are eligible for admission to similar fields as that of BT. In this case, holders of BT nursing may apply to any health-related major.

Those applying to the BSN program should complete the following remedial/prerequisite freshman level courses prior to the BSN II year:

- 3 credits in mathematics (choose one of: MATH 101, MATH 102, MATH 203, MATH 204).
- 3 credits in chemistry (CHEM 101).
- 3 credits in biology (BIOL 101).
- 3 credits in physics (PHYS 101, 103 or 200).

BS/BA-BSN

The School of Nursing accelerated program is designed for individuals who have a BS/BA in fields other than nursing. The streamlined curriculum permits students to earn a BSN in 24 months. Students who graduate from this program are entitled to sit for the National Colloquium Exam to become registered nurses. The admission to the BS/BA-BSN program requires the following:

- BS/BA degree in a field other than nursing.
- A minimum GPA 3.0 including prerequisite courses and general education requirements.
- Completion of the following prerequisite courses prior to admission: ENGL 204, PSYC 201, biostatistics course, PSYC 210, SOAN 201, and four elective courses in humanities.

Applications are available online through the AUB website. Students are urged to submit course syllabi and course descriptions for courses requiring equivalence.

Transfers

Transfer from the Freshman Class

Transfer students from the freshman class of the Faculty of Arts and Sciences may apply to the sophomore year at the Rafic Hariri School of Nursing. To be eligible for admission, the applicants must have:

- Completed at least 26 freshman credits prior to their registration in the fall or spring term and achieved a minimum cumulative GPA of 2.7.

Transfer from Other Faculties at AUB

Transfer students from other faculties at AUB may apply to the BSN program. To be eligible for admission, applicants must have:

- Completed at least 24 credits prior to their registration in the fall or spring term and achieved a minimum cumulative GPA of 2.7.

Transfer from Other Universities

Transfer students from other universities in Lebanon or abroad may apply to the junior year. To be eligible for admission, applicants must have:

- Completed 30 sophomore credits (one year) or more prior to their registration in the fall or spring term.
- Achieved a minimum cumulative GPA equivalent to the AUB GPA 2.7.
- Submitted the most recent transcript of their grades.
- Met the Readiness for University Studies in English.

Once students are accepted, the assigned academic advisers will follow up with them on credit transfer and course equivalence. Students should submit course syllabi and course descriptions for courses requiring equivalence. Credits transferred from other institutions will show as 'Pass' on the AUB transcript and will not be part of the calculation of the GPA (with reference to the General University Academic Information). A grade of (C+) or above is required in the major courses for transfer. Furthermore, accepted students must complete the final 45 credits at AUB.

Graduation Requirements

All recommendations for graduation are made by vote of the faculty upon the recommendation of the academic committee.

To be eligible for graduation with the degree of bachelor of science in nursing, the following requirements must be met:

- Completion of the prescribed program of study with a minimum of 103 credits after the freshman class or equivalent, and 91 credits for those entering as registered nurses (excluding the remedial courses mentioned under section TS/LT-BSN program).
- An overall minimum GPA of 2.3, excluding freshman courses.
- The degree program must be completed within a maximum of six years, divided as follows: two calendar years for BSN II, two calendar years for BSN III, and two calendar years for BSN IV.

Refer to the General university academic information for more details.

All undergraduate transfer students from AUB or from other recognized institutions of higher learning to the School of Nursing need to complete the required prerequisites and all required nursing courses. A minimum residency period of one year or 30 credits for within AUB transfers and 45 credits for transfers from outside must be completed at AUB.
Course credits pertinent to the nursing curriculum may be transferred according to criteria set by the admission and academic committees.

Licensing

Graduates are qualified for the licensing examination in Lebanon (Colloquium). Non-Lebanese graduates cannot practice nursing in Lebanon, unless permitted by the Order of Nurses in Lebanon in exceptional situations.

Promotion

Students shall be promoted at the end of the summer term after completion of 30 or more credits beyond the requirements from the previous level. However, students who register in September and who lack 6 or fewer credits for completion of a class will be registered in the next higher class at the discretion of the academic committee. In order to be promoted, students must attain a minimum average of (GPA: 2.1) at the end of the second regular term (sophomore year) and (GPA: 2.3) in the following years. Promotion of BSN students based on earned credits: sophomore (N2) nursing students are promoted to N3 if they complete 30 earned credits, and junior (N3) nursing students are promoted to N4 if they complete 67 earned credits.

Grading System

The passing grade for all nursing major courses is C+, except for NURS 203 (passing grade is D).
Refer to the grading system, under General University Academic Information section in the catalogue.

Dismissal from the BSN Program

Students may be dismissed by vote of the faculty upon the recommendation of the academic committee in any of the following cases:

- Failure to remove probation within two terms.
- Failure in one-third or more of the load attempted during that year and failure to attain the minimum yearly average (GPA).
- Failure to make satisfactory academic progress, not showing sufficient professional promise, or having behaved in a manner below the norms expected by the school.
- Failure to meet clinical requirements as stipulated in the nursing courses syllabi.
- Failure to satisfy the requirements of the repeated year.

Students who are dropped from the program will be placed as major less for two consecutive regular terms to secure a transfer to another major by the third term of being major less or risk being dismissed from the university. Refer to the General University Academic Information section for more details.

Awards

BSN students can be nominated for an award. A list of awards is found below for your reference. Students can nominate themselves. In addition, an adviser or a faculty member can nominate students for awards. Eligible nominees should:

1. Submit a nomination form.
2. Have a minimum overall GPA of 3.2.
3. Not have received a dean's warning.
4. Be recommended by their adviser.
5. Have contributed to university life.
6. Portray a professional image.

Florence Nightingale Award

Awarded to an undergraduate senior student who meets the following criteria: academic achievement, professional integrity, and contribution to professional and university life.

Penrose Award

Awarded to an undergraduate student on the basis of scholarship, character, leadership, and contribution to university life.

Janet Jeries Haddadin Nursing Award

Awarded to an undergraduate student with the highest GPA.

Salma Mansur Jurdak Excellence Award in Nursing

Awarded to a graduating student majoring in nursing at the Rafic Hariri School of Nursing with top academic achievement and demonstrated dedication to the profession.

Women's Auxiliary Awards

Awarded to senior students who meet the following criteria: academic achievement, professional integrity and seriousness of purpose, contribution to professional and university life, and willingness to join AUBMC after graduation.

Lions Award

Awarded to an outstanding student who has been commended by the Rafic Hariri School of Nursing.

Rouzan Al-Najjar Memorial Award in Nursing

Awarded to three Arab students, one in each year of the nursing program, who are the most academically qualified.

Siham Rida Ali Endowed Nursing Award

Awarded to a top graduating senior student from the Rafic Hariri School of Nursing (HSON), who demonstrates excellence and high impact in a community project or engagement.

Courses

Course Numbers

Nursing courses are numbered according to level and they normally follow a sequence. See curriculum for the bachelor of science in nursing and course descriptions below:

Numbers Following Course Titles in the Course Description

- The first number following the title of the course indicates the number of class hours per week.
- The second number indicates the clinical/simulation hours required each week.
- The last number indicates the number of credit hours applied towards graduation.

Frequency of Courses

Courses marked fall/spring/summer are offered accordingly during each academic year.

Curriculum for Bachelor of Science in Nursing

First Year

Freshman curriculum requires completion of 30 credits. The following courses are required: ENGL 203 (3cr), Humanities & Social Sciences (9cr), MATH 100 (3cr), CHEM 101 (3cr), CHEM 101L (1cr), BIOL 101 (3cr), Natural Sciences (3cr) & Electives (5cr), suggested electives: ENGL 102 (IF TAKEN) or any other 100-level course.

Second Year

		No. of Weeks	Lecture Hrs.	Lab. or Clinical Hrs.	Total Clock Hrs.	Credit Hrs.
First Term						
BIOC 246	Biochemistry for Nurses	16	64	-	64	4
ENGL 203	Academic English	16	48	-	48	3
HUMR 244	Introduction to Human Biology	16	32	-	32	2
NURS 200	Introduction to Nursing	16	32	-	32	2
PSYC 201	Introduction to Psychological Science	16	48	-	48	3
Total			**224**		**224**	**14**
Second Term						
NURS 201	Introduction to Nursing Practice	16	16	35	51	2
NURS 202	Health Assessment	16	16	35	51	2
HUMR 248	Human Anatomy and Physiology	16	60	30	90	5
MBIM 237	Microbiology and Immunology for Nursing	16	32	28	60	3
NURS 203	Biostatistics for Nurses	16	48	-	48	3
Total			**172**	**128**	**300**	**15**

Summer Term						
ELEC	History of Ideas (Cultures and Histories)	8	48	-	48	3
ELEC	Cultures and Histories	8	48	-	48	3
ENGL 204	Advanced Academic English	8	48	-	48	3
Total			**144**	**0**	**144**	**9**

Third Year

		No. of Weeks	Lecture Hrs.	Lab. or Clinical Hrs.	Total Clock Hrs.	Credit Hrs.
First Term						
PHRM 240	Pharmacology	16	48	-	48	3
NURS 300	Nursing Care of Adults and Older Adults I: Theory and Practicum	16	32	112	144	5
NURS 304	Nursing Care of the Expectant Family: Theory and Practicum	16	32	112	144	5
PSYC 210 or EDUC 225	Lifespan Development Psychology Child & Adolescent Development	16	48	-	48	3
NURS 210A	Pathophysiology	16	16	-	16	1
Total			**176**	**224**	**400**	**17**

Second Term						
NURS 302	Nursing Care of Adults and Older Adults II: Theory and Practicum	16	32	112	144	5
NURS 306	Nursing Care of the Children, Theory and Practicum	16	32	112	144	5
NURS 210B	Pathophysiology	16	16	-	16	1
ELECT	Human Values (Ethics)	16	48	-	48	3
Total			**128**	**224**	**352**	**14**

Summer Term						
SOAN 201	Introduction to the Study of the Society	8	48	-	48	3
ARAB	Arabic Communication Skills	8	48	-	48	3
NURS 307	Practicum I	8	-	80	80	0
Total			**96**	**80**	**192**	**6**

Fourth Year

		No. of Weeks	Lecture Hrs.	Lab. or Clinical Hrs.	Total Clock Hrs.	Credit Hrs.
First Term						
NURS 400	Critical Care Nursing, Theory and Practicum	16	32	84	116	4
NURS 402	Mental Health and Psychiatric Nursing, Theory and Practicum	16	48	84	132	5
NURS 406	Nursing Research	16	48	-	48	3
NURS 404	Nursing Informatics	16	32	-	32	2
Total			**160**	**168**	**328**	**14**
Second Term						
NURS 408	Community Health Nursing, Theory and Practicum	6	48	84	132	5
NURS 410	Leadership and Management in Nursing, Theory and Practicum	16	48	96	144	5
ELEC	Cultures and Histories	16	48	-	48	3
NURS 411	Intensive Practicum II	16	-	144	144	0
IPEC 300	Interprofessional Education and Collaboration	16	16	-	16	1
Total			**159**	**324**	**483**	**14**
Total Credit Hours			**1259**	**1164**	**2423**	**103**

Curriculum for TS/LT-BSN.

First Year

		No. of Weeks	Lecture Hrs.	Lab. or Clinical Hrs.	Total Clock Hrs.	Credit Hrs.
First Term						
BIOC 246	Biochemistry for Nurses	16	64	-	64	4
ENGL 203	Academic English	16	48	-	48	3
HUMR 244	Introduction to Human Biology	16	32		32	2
PSYC 201	Introduction to Psychological Science	16	48	-	48	3
MATH		16	48	-	48	3
Total			**240**		**240**	**15**
Second Term						
HUMR 248	Human Anatomy and Physiology	16	60	30	90	5
MBIM 237	Microbiology and Immunology for Nursing	16	32	28	60	3
NURS 205	Foundations of Professional Nursing	16	32	-	32	2
NURS 203	Biostatistics for Nurses	16	48	-	48	3
PHYSICS		16	48	-	48	3
Total			**220**	**58**	**278**	**16**

Summer Term						
PHRM 240V	Pharmacology	8	48	-	48	3
NURS 308V	Maternal-Child Nursing, Theory and Practicum	8	48	144	192	6
Total			**96**	**144**	**240**	**9**

Second Year

		No. of Weeks	Lecture Hrs.	Lab. or Clinical Hrs.	Total Clock Hrs.	Credit Hrs.
First Term						
SOAN 201	Introduction to the Study of the Society	16	48	-	48	3
PSYC 210	Lifespan Development Psychology	16	48	-	48	3
ENGL 204	Advanced Academic English	16	48	-	48	3
ELEC	Cultures and Histories	16	48	-	48	3
BIOLOGY		16	48	-	48	3
NURS 210A	Pathophysiology	16	16	-	16	1
Total			**256**	**0**	**256**	**16**

Second Term						
NURS 312	Mental Health and Psychiatric Nursing, Theory and Practicum	16	48	84	132	5
NURS 210B	Pathophysiology	16	16	-	16	1
NURS 313	Leadership and Management in Nursing, Theory and Practicum	16	48	96	144	5
CHEMISTRY		16	48	-	48	3
Total			**160**	**180**	**340**	**14**

Summer Term						
NURS 311V	Nursing Care of Adults and older Adults, Theory and Practicum	8	48	126	174	6
ELEC	Elective Humanities	8	48	-	48	3
Total			**96**	**126**	**222**	**9**

Third Year

		No. of Weeks	Lecture Hrs.	Lab. or Clinical Hrs.	Total Clock Hrs.	Credit Hrs.
First Term						
NURS 405V	Critical Care Nursing, Theory and Practicum	16	32	84	116	4
NURS 406	Nursing Research	16	48	-	48	3
NURS 404	Nursing Informatics	16	32	-	32	2
NURS 314	Community Health Nursing, Theory and Practicum	16	48	48	132	5
IPEC 300	Interprofessional Education and Collaboration	16	15	-	15	1
Total		**-**	**175**	**168**	**343**	**15**
Second Term						
ARAB 201	Issues in Contemporary Arab Culture	16	48	-	48	3
ELECT	Cultures and Histories	16	48	-	48	3
ELECT	Human Values	16	48	-	48	3
Total		**-**	**144**	**-**	**144**	**9**
Total Credit Hours			**1387**	**508**	**2063**	**103**

Courses may be validated through examination.

Course Descriptions

NURS 200 Introduction to Nursing 2.0; 2 cr.
This course is designed to introduce major concepts that are basic to nursing practice. It familiarizes the students with the nature, history, and trends of nursing and the nurses' role in meeting healthcare needs of society in different settings. This course focuses on concepts related to the nurse, client and healthcare environment, professional nursing practice, family development, and human needs. It uses a combination of face to face (f2f) modules (in class meetings) and online modules (online activities). Fall, and spring if enrollment is at least 15.

NURS 201 Introduction to Nursing Practice 1.3; 2 cr.
This course introduces students to concepts and interventions that are basic to nursing practice. The course uses the nursing process as the organizing framework, and the concepts of health, nursing, client, and environment are integrated throughout. Performance of basic client care skills are emphasized, including the scientific rationale for both health promoting and health restoring nursing interventions. Prerequisites: NURS 200 and HUMR 244; concurrent: HUMR 248.

NURS 202 Health Assessment 1.3; 2 cr.
The course focuses on assessment of health of adults and older adults and provides the students with the knowledge and skills needed to assess the health status of adults and older adults. Emphasis is placed on assessment of the physical, psychosocial, and cultural dimensions of the individual. The course includes lectures and practical experiences in the assessment of individuals to identify normal and abnormal findings. Prerequisite: NURS 200; corequisites: NURS 201 and HUMR 248. Spring.

NURS 203 Biostatistics for Nurses 3.0; 3 cr.
This course is designed to introduce BSN students to the concepts and applications of statistics in the nursing field. The course starts with a general overview of probability, types of data, and ways to summarize and present them. The course then introduces the concept of hypothesis testing and the methods to carry them. Applications on the computer using the SPSS software will be discussed in class. Spring.

NURS 205 Foundation of Professional Nursing 2.0; 2 cr.
In this course students will explore recent issues affecting the nursing profession in terms of role expansion of the nurse. The nursing process is covered as an organizing framework for nursing practice.

NURS 210A Pathophysiology I 1.0; 1 cr.
This course relates normal body functioning to the physiologic changes that occur because of disease, as well as the body's remarkable ability to compensate for these changes. Emphasis is placed on the following: Introductory concepts of health, disease, pathology and pathophysiology, inflammation, cardiovascular and respiratory pathophysiology, neoplasia, immune system, hematologic, gastrointestinal and musculoskeletal pathophysiology. Prerequisites: NURS 201, NURS 202, BIOC 246, HUMR 248, and MBIM 237. Fall.

NURS 210B Pathophysiology II 1.0; 1 cr.
This course is a continuation of NURS 210A. Emphasis is placed on the following: genetics and genomics in nursing, neurologic, sensory, endocrine, renal, integumentary, hepatic and biliary pathophysiology, as well as the infectious process. Prerequisites: NURS 210A. Spring.

NURS 300 Nursing Care of Adults and Older Adults I, Theory and Practicum 2.2.6; 5 cr.
This course facilitates the development of knowledge and application of scientific principles in the care of clients at risk for or patients who are experiencing acute medical or surgical problems. Pathologic changes, medical and surgical management, prevention, self-care, and nursing process are discussed at length for each disorder. Prerequisite: NURS 201 and NURS 202; corequisites: PHRM 240 and NURS 210A. Fall.

NURS 302 Nursing Care of Adults and Older Adults II, Theory and Practicum 2.2.6; 5 cr.
This course emphasizes health promotion and disease prevention, the management of acute and chronic conditions, and the principles of palliation to address symptom burden, quality of life, and patient priorities across the illness trajectory. Students are guided to apply scientific knowledge and clinical judgment to deliver person-centered, evidence-based, and compassionate care. The clinical component supports the integration of theory into practice through direct patient care experiences that foster effective communication and adherence to quality and safety standards. Prerequisites: PHRM 240, NURS 300 and NURS 210A; corequisites: NURS 210B. Fall.

NURS 304 Nursing Care of the Expectant Family, Theory and Practicum 2.2.6; 5 cr.
This course focuses on reproductive health, from conception to the neonatal period. The content stresses the nurse's role in reproductive health and risk management. The practicum provides clinical application of knowledge, focusing on women in the childbearing cycle, the newborn, and families as clients in the hospital and outpatient settings. Prerequisites: NURS 201 and NURS 202; corequisites: PHRM 240 and NURS 210A. Fall.

NURS 306 Nursing Care of Children, Theory and Practicum 2.2.6; 5 cr.
This course focuses on the care of children, from infancy through adolescence. Topics include ambulatory and in-patient care, as well as primary, secondary, and tertiary care. The practicum provides the students with opportunities to assess health needs of children based on knowledge of growth and development, and to implement nursing care based on the nursing process. The roles of nurses as teacher, patient advocate, and nurturer are emphasized. Prerequisites: PHRM 240, NURS 304, NURS 210A, and PSYC 210 or EDUC 225; corequisite: NURS 210B. Spring.

NURS 307 Practicum I 0.6; 0 cr.
This course is designed to provide students with opportunities to practice advanced nursing skills learned in previous nursing courses and builds on experiences gained in the sophomore and junior years. Prerequisites: NURS 210B, NURS 302, and NURS 306. Summer.

NURS 308V Maternal Child Nursing, Theory and Practicum 3.8; 6 cr.
This course focuses on the childbearing family from conception to the newborn period as well as primary and tertiary care of the ill child from infancy to adolescence. The clinical component emphasizes the application of knowledge acquired in class in the care of the childbearing family and children with illnesses from infancy to adolescence. Corequisite: PSYC 210 or EDUC 225.

NURS 311V Nursing Care of Adults and Older Adults, Theory and Practicum 3.8; 6 cr.
Facilitates the development of advanced knowledge and application of scientific principles in the care of clients representing medical-surgical problems of the adult population. This course builds on the framework of person, environment, health status, and nursing. The clinical component provides an opportunity for advanced clinical application of concepts discussed in class in the care of patients and their families.

NURS 312 Mental Health and Psychiatric Nursing, Theory and Practicum 3.6; 5 cr.
The holistic philosophy of clients as bio-psycho-social entities is stressed in both mental health and mental illness. General theories of psychiatry and mental health therapies are presented. The course provides clinical experience in psychiatric-mental health settings. Emphasis is placed on the quality of coping abilities of clients in varying degrees of stress and crisis. Opportunities are provided for students to work collaboratively with multi-disciplinary health teams to assess, plan, and implement relevant nursing interventions in both mental health and illness. Prerequisites: SOAN 201 and PSYC 201. Fall and spring.

NURS 313 Leadership and Management in Nursing, Theory and Practicum 3.6; 5 cr.
This course discusses concepts of leadership, management, creativity, analysis, power, change, and evaluation. Students investigate, analyze, and conceptualize the different modalities of leadership, utilizing nursing and management theories. The practicum allows students to explore their roles as potential leaders. The learners observe and assist in the practice of different modalities of leadership and managerial skills in a variety of healthcare settings.

NURS 314 Community Health Nursing, Theory and Practicum 3.6; 5 cr.
The course provides knowledge in the broad area of the field of nursing, public health, and primary healthcare. The levels of prime concern are the small group, including the family and its individual members, and the large group, including the community. The focus of the clinical component is on the promotion and maintenance of high levels of health and wellbeing and prevention of illness and disability. Fall and spring.

NURS 400 Critical Care Nursing, Theory and Practicum 2.2.4; 4cr.
This course focuses on the care of clients with critical care problems. Emphasis is placed on cardiovascular and respiratory problems, neurologic disturbances, shock, sepsis, metabolic and endocrine imbalances, altered nutrition, renal failure, emergency, and disaster nursing. The practicum provides opportunities to apply knowledge in clinical settings. Prerequisites: NURS 302 and NURS 307. Fall.

NURS 402 Psychiatry and Mental Health Nursing, Theory and Practicum 3.6; 5 cr.
This course offers a comprehensive overview of mental health and psychiatric disorders, highlighting the essential role nurses play in psychiatric and mental healthcare environments. It merges theoretical knowledge with practical application, incorporating classroom instruction and clinical practice to prepare students to develop and foster effective therapeutic relationships with patients. The course applies psychiatric nursing principles to specific clinical disorders, utilizing the nursing process and the Diagnostic and Statistical Manual for Mental Disorders (DSM-5) for diagnoses. It explores coping responses from adaptive to maladaptive, emphasizing the quality of coping abilities in individuals, families, and communities under various stress and crisis conditions. Prerequisites: senior standing, PSYC 201, SOAN 201, and NURS 307. Fall and spring.

NURS 404 Nursing Informatics 2.0; 2 cr.
This course introduces nursing informatics with a focus on applying informatics and healthcare technologies in professional nursing practice. Emphasis is placed on how nurses use information and communication technologies (ICT) to deliver safe, efficient, and high-quality care. The course explores the integration of electronic health records, clinical decision support, mobile health, telehealth, and data standards in nursing. Students will examine the ethical, legal implications of health information technologies and develop competencies essential for team communication across diverse healthcare settings. Senior standing. Fall.

NURS 405V Critical Care Nursing, Theory and Practicum 2.6; 4 cr.
This course addresses the management of critically ill adults. Emphasis is placed on diagnostic reasoning, interventions, and outcome assessment in patients presenting with complex cardiovascular, respiratory, renal and metabolic problems, as well as trauma. The clinical component provides experiences where students apply concepts learned in class in critical care areas in the hospital. Prerequisite: NURS 311V.

NURS 406 Nursing Research 3.0; 3 cr.
Focuses on the process involved in the scientific approach and its application to nursing. Special emphasis is on the basic research steps, the research design, assessment measures, and data analysis with a focus on research utilization. Prerequisites: NURS 203 and ENGL 203; concurrent: ENGL 204. Fall. Senior standing.

NURS 408 Community Health Nurses 3.6; 5 cr.
This course introduces students to the field of community health nursing. The primary targets are individuals, families, and communities. The competencies acquired in this course enable students through collaboration with other health professionals to provide care on a continuum from health promotion, prevention and maintenance of illness and disability. Prerequisites: SOAN 201 and NURS 307; Senior standing. Fall and spring.

NURS 410 Leadership and Management in Nursing, Theory and Practicum 3.6; 5 cr.
This course discusses how professional nursing incorporates the concepts of leadership, management, creativity, analysis, power, change, and evaluation. In this course, students investigate, analyze, and conceptualize the different modalities of leadership, utilizing nursing and management theories. The practicum allows students to explore their role as potential leaders. Students observe and assist in the practice of different modalities of leadership and managerial skills in a variety of healthcare settings. Prerequisites: NURS 307 and NURS 400. Senior standing. Spring.

NURS 411 Intensive Practicum in Area of interest 0.9; 0 cr.
This experiential course focuses on preparing students towards their transition to professional nursing practice. Opportunities are provided for students to synthesize knowledge and refine skills acquired in the planning, provision and evaluation of nursing care, communication, and interdisciplinary practice in a clinical area of their interest. Students will organize into groups, develop a capstone project, and a formal presentation to share with students, faculty, and invited guests. Prerequisites: NURS 307 and NURS 400. Senior standing. Spring.

IPEC 300 Interprofessional Education and Collaboration 1.0; 1 cr.
In this course, students from nursing and public health will learn how population health is best promoted and safe. Patient-centered care is best provided through a collaborative health teams approach. This is a required course for senior undergraduate nursing and master of public health students. The course is case-based on health topics across the life-course on which interprofessional collaboration is necessary. Discussion groups combining public health and nursing students will be moderated by faculty members from the two professions. Students will learn the roles and responsibilities of other health professions and how to function in inter-professional teams. Prerequisites: senior standing.

Endowed Faculty Chairs; Academic Centers, Programs, Institutes; Student Scholarships, Hardships; Fellowships; Awards; and Research Funds

Endowed Faculty Chairs

Faculty of Medicine

- Azeez and Marie El-Khoury Professorship in Ophthalmology
- Chair in Conflict Medicine in Honor of Dr. Ghassan Abu-Sittah
- Iskandar & Olina Haurani Visiting Professorship in Medicine
- The Pillar Genomics Institute of Precision Medicine Endowed Chair
- Raja N. Khuri Deanship for the Faculty of Medicine

Maroun Semaan Faculty of Engineering and Architecture

- Al Mu'allim Mohamed Awad Binladin Chair in Architecture in the Islamic World
- Dar Al-Handasah (Shair & Partners) Endowed Professorship in MSFEA
- Howard W. Page Professorship in Engineering
- Mohammed Abdulmohsin Al-Kharafi Chair in Engineering
- The Qatar Chair for Energy Studies

Suliman S. Olayan School of Business

- The Abdul Aziz Al-Sagar Chair in Finance
- Coca-Cola Chair in Marketing
- Husni Ahmed Sawwaf Chair in Business and Management
- Kamal Shair Chair in Leadership at OSB
- Sheikh Said Himadeh Distinguished Visiting Professorship

Faculty of Arts and Sciences

- Albert Rihani Chair in Humanities
- Alfred H. Howell Chair in History and Archaeology
- Altaf S. Al Sabah Visiting Chair in Women and Societal Development Studies
- Constantine H. and Bonnie Issidorides Chair in Organic Chemistry
- Edward W. Said Endowed Chair in American Studies
- Jabre-Khawarizmi Endowed Chair in Arabic and Islamic Science
- Mamdouha El-Sayed Bobst Dean of the Faculty of Arts and Science
- Mamdouha El-Sayed Bobst Visiting Professorship
- Margaret Weyerhaeuser Jewett Chair of Arabic
- Mary Fox Whittlesey Visiting Professorship
- Michael Atiyah Chair in Mathematical Sciences
- The Mohammad Atallah Chair for Ethics
- Philip K. Hitti Endowed Chair in Middle Eastern Studies
- Philippe Jabre Endowed Professorship in Art History and Curating
- Sheikh Zayed Bin Sultan Al-Nahyan Chair of Arab and Islamic Studies

Faculty of Health Sciences

- Gangarosa Family Endowed Chair for Safe Water and Sanitation

Academic Centers, Programs, and Institutes

Office of the Provost

- Asfari Institute for Civil Society and Citizenship
- Center for Advanced Mathematical Sciences (CAMS)
- Center for Civic Engagement and Community Service (CCECS)
- Center for Teaching and Learning
- Continuing Education Center
- Farouk Jabre Center for Arabic and Islamic Science and Philosophy
- Global Health Institute (GHI)
- Issam Fares Institute for Public Policy and International Affairs (IFI)
- Munib and Angela Masri Institute of Energy and Natural Resources
- Nature Conservation Center (NCC)
- Palestine Land Studies Center (PLSC)
- The Writing Center

Faculty of Agricultural and Food Sciences

- Advancing Research Enabling Communities Center (AREC)
- Environment and Sustainable Development Unit (ESDU)
- The Laboratories for The Environment, Agriculture and Food (LEAF)

Faculty of Arts and Sciences

- Anis K. Makdisi Program in Literature
- Center for Arab and Middle Eastern Studies (CAMES)
- Center for Arts and Humanities (CAH)
- Critical Humanities for the Liberal Arts (CHLA) Program
- Environmental Policy Planning Program (ENVP)
- Graduate Program in Computational Sciences (GPCS)
- General Education (GE) Program
- Islamic Studies Program
- Institute of Financial Economics (IFE)
- Kamal A. Shair Central Research Science Laboratory
- Prince Alwaleed Bin Talal Bin Abdulaziz Alsaud Center for American Studies and Research (CASAR)
- Science and Mathematics Education Center (SMEC)
- University Preparatory Program (UPP)
- Zaki Nassif Music Program (ZNMP)

Faculty of Health Sciences

- Center for Public Health Practice (CPHP)
- Center for Research on Population & Health (CRPH)
- Knowledge-to-Policy (K2P) Center
- Ford Foundation Endowment to the Center for Research on Population and Health

Faculty of Medicine

- Abu-Haidar Neurology and Behavioral Science Center (AHNI)
- Children's Cancer Institute
- Children's Heart Center
- Clinical Research Institute
- Hamdi Al Zaim Interstitial Lung Disease Outpatient Center
- Health & Wellness Center
- Naef K. Basile Cancer Institute (NKBCI)
- Nehme and Therese Tohme Multiple Sclerosis Center
- Pillar Genomics Institute of Precision Medicine
- Salim El-Hoss Bioethics and Professionalism Program
- Women's Health Center
- Wound Care Center

Maroun Semaan Faculty of Engineering and Architecture

- Munib and Angela Masri Institute of Energy and Natural Resources
- Rada and Mutaz Sawaf Center for Arab Comics Studies

Suliman S. Olayan School of Business

- Center for Women in Business (CIBL)
- Samih Darwazah Center for Innovation Management and Entrepreneurship
- Rami F. Makhzoumi Corporate Governance Initiative (RMCGI)

Multidisciplinary and Inter-faculty

- Center for Systematic Reviews on Health Policy and Systems Research
- Charles Hostler Student Center
- Evidence-Based Healthcare Management Unit
- Global Health Institute
- Humanitarian Engineering and Public Health Innovations Unit
- Kadifa Family Computer Science and Engineering (CSE) Program Fund
- Talal and Madiha Zein AUB Innovation Park (Zein AUB iPark)

Donor- Funded Scholarships

Donor-Funded Scholarships are an important part of AUB's financial aid program. Donor-Funded Scholarships are available to provide support to qualified students in financial need.

- 150 for 150 Endowed Scholarship
- A Family Scholarship
- A Giving Hand and Hope - M. Nassif et Fils Scholarship
- A. Hawi Scholarship
- A. Karim and Soraya El Cheikh Endowed Scholarship
- A. Sayour-Greek Orthodox Scholarship
- A.G. Massabki Scholarship
- A.M. Rabbat Endowed Scholarship
- A.M. Students Scholarship
- Abdallah and Samia Tamari Foundation Endowed Scholarship
- Abdallah Youssef Lahoud Endowed Scholarship
- Abdel Rahim Mahfouz Scholarship for Medical Students
- Abdel Rahman Tabbara Scholarship
- Abdo and Sally Kadifa Scholarship
- Abdul Aziz Al-Bahar Scholarship
- Abdul Aziz Soueidan Endowed Scholarship
- Abdul Ghani and Inayat Hammour Endowed Scholarship
- Abdul Halim Jabre Memorial Scholarship
- Abdul Mohsen Al-Qattan Endowed Scholarship
- Abdullah Osseiran Memorial Endowed Scholarship
- AbdulMalik Yousuf Al-Hamar Memorial Scholarship
- Abdulrahman Mohamad Al Bahar Scholarship
- Act for Lebanon Scholarship
- ACTS Scholarship
- Adham El Khalil Scholarship
- Adib Bassatne Scholarship for Medical Students
- Advancement Scholarship for Online Students
- Aghnie Farouk Abi Rafeh Endowed Scholarship
- Agnes Varis Endowed Scholarship
- Ahmad Abdul Jabbar Endowed Scholarship Fund
- Ahmad and Shirine El Khatib Endowed Scholarship
- Ahmad S. El-Khalidy Endowed Scholarship
- Ahmad S. Zaabri Endowed Scholarship
- Ahmad Shamsuddin Memorial Endowed Scholarship
- Aida Ashur Hannun Endowed Scholarship
- Akram Miknas Scholarship
- Al Kazzi Family Scholarship
- Al Reem Marble Scholarship
- Al-Anoud Afif Al-Mahmassani Scholarship
- Alarab Education Foundation Scholarship

- Alexander Ercklentz Scholarship
- Ali El-Bachir Scholarship
- Ali Ghandour Endowed Scholarship
- Ali Hojeij Scholarship
- Ali Nesr Educational Program (ANEP) Fund
- Alice and Brahim Fuleihan Scholarship
- Alice Michael Endowed Scholarship for Assyrians
- Alice Michael Scholarship for Assyrians
- Allen Page McKee Endowed Scholarship
- ALMA Scholarship for Medical Students
- Alsaad General Contracting Endowed Scholarship
- Alumni Class Reunion Endowed Scholarship
- Amal and Farouk K. Jabre Endowed Scholarship Fund
- AMALAS Current Scholarship
- AMALAS Endowed Scholarship
- Amany Scholarship
- Ambassador Frank G. Wisner Scholarship
- Ambra Daouk Dabbous Scholarship
- Amer Zeitoun Scholarship
- Amina & Deeb Haidar Scholarship
- Amina and Deeb Haidar Endowed Scholarship
- Andre Antoine Merab Memorial Endowed Scholarship
- Andre Dirlik and Raja Ghandour Endowed Scholarship
- Angela Jurdak Khoury Endowed Scholarship
- Angela Jurdak Khoury Endowed Scholarship Fund
- Anis A. Bibi Memorial Scholarship Fund
- Anis B. & Mima Malouf Endowed Scholarship
- Anis Bibi Endowed Scholarship
- Annette and Nabil Habayeb Endowed Scholarship
- Anthony Bing Scholarship
- Anthony E. Mansour Endowed Scholarship
- Antoine Saad Hamra Memorial Endowed Scholarship Fund
- Antoine Sabbagh Scholarship
- Antoun Saadeh Endowed Scholarship
- Arabia Insurance Nabih Faris Memorial Endowed Scholarship
- Archak & Maroun Senekjian Scholarship Fund
- AREC ’82 Endowed Scholarship
- AREC ’82 Scholarship - Current
- AREC ‘78 And Friends Endowed Scholarship Fund
- AREC ‘80 Endowed Scholarship
- AREC 80 Student Hardship Fund
- Areen Projects Scholarship Fund
- ASAI Scholarship
- ASD48 Family Office Scholarship
- ATFL Scholarship in the name of Joseph J. Jacobs

- AUB Alumni Association of North America
- AUB Alumni at NPCC Abu Dhabi Scholarship
- AUB Alumni Club of Jordan Scholarship Fund
- AUB Alumni Development Scholarship
- AUB Alumni Student Scholarship
- AUB Emergency Fund
- AUB Emergency Fund - Student Aid
- AUB Faculty & Staff Scholarship Fund
- AUB Fine & Performing Arts Endowed Fund
- AUB Outdoors Scholarship
- AUB Scholarship Fundraising Committee
- AUB Scholarship Fundraising Committee Endowed Scholarship
- AUB Women Centennial Fund
- AUB4Students Scholarship
- Awni Toukan Endowed Scholarship
- Awni Toukan Scholarship
- Ayman Taji Farouki Scholarship Fund
- Azeez & Saleemeh Shaheen Scholarship Fund
- Aznive Etinoff Memorial Scholarship
- Bana Hilal Endowed Scholarship
- Bank Audi Scholarship
- BAPCO Endowed Scholarship
- Barakat-Sawabini Endowed Scholarship Fund
- Bashar Hassan Khayat Memorial Endowed Scholarship
- Bechara Raad (EE 89) and Yen Fong Raad Scholarship
- Beit El Baraka Scholarship
- Bilani Family Scholarship
- Bliss Memorial Scholarship
- BLOM Bank Scholarship for Business Students
- BoB Finance Scholarship
- Bobst - Endowed Scholarships - Old
- Boodai Endowed Scholarship Fund
- Bushra Itani and Ahmad Issa Endowed Scholarship
- C. R. Whittlesey Memorial Scholarship
- C.A.T. Group Scholarship for Engineering
- C.A.T. Group Scholarships
- C.R. Whittlesey Memorial Scholarship
- C.V. Starr Endowed Scholarship Fund
- Carmen and Ray Debbane Endowed Scholarship
- Carmen and Ray Debbane Scholarship
- Carole and Abdullah Al-Hobayb Scholarship
- CCE’ 95 Scholarship
- Chalhoub Group Scholarship
- Charbel & Aida Tagher Family Endowed Scholarship
- Charbel Tagher Family Scholarship

- Charles Hagopian Endowed Scholarship
- Charles J. Hinkaty Scholarship
- Charles Saleh and Mary Haddad Saleh Endowed Scholarship
- Chartouni Scholarship
- Chinyeh Hostler Endowed Scholarship
- Christa Maria and Maria Nour Makzoume Scholarship
- Clapp-Constan Endowed Scholarship
- Class of MD 1974 Endowed Scholarship
- Class of MD 2000 Endowed Scholarship
- Class of MD 89 Endowed Scholarship
- Cleartag-Mirum Endowed Scholarship
- CMA CGM Excellence for Education
- Computer Science Alumni Chapter Endowed Scholarship
- Constantine Zurayk Endowed Scholarship
- Daniel & Emily Oliver Endowed Scholarship
- Daniel Bliss Scholarship
- Dar Al Wafaa Endowed Scholarship
- David A. Fuleihan Endowed Scholarship
- David S. Dodge Arabic Fund
- David S. Dodge Endowed Scholarship
- Dean Lutfi Diab Endowed Scholarship
- Dean Robert Najemy Endowed Scholarship
- Deloitte ME Scholarship
- Dina and Karim Chams Eddine Scholarship
- Diraar Y. Alghanim Scholarship Fund
- Don and Nancy Mafrige Endowed Scholarship
- Don and Nancy Mafrige Scholarship
- Donald C. Platten Scholarship
- Doris Dodge Endowed Scholarship
- Dorothy H. Rogers Memorial Endowed Scholarship
- Douma Ladies Charitable Society Endowed Scholarship
- Dr. Abdallah, Mohamad, and Shaikha Isa Endowed Scholarship
- Dr. Abderrahman Samih Toukan Endowed Scholarship
- Dr. Abderrahman Samih Toukan Scholarship
- Dr. Abdu George and Janice Hawwa Scholarship
- Dr. Abdulla Al-Thani Scholarship
- Dr. Adnan and Mrs. Vesta Dajani Endowed Scholarship
- Dr. Afif and Mrs. Zamzam Abdulwahab Scholarship
- Dr. Ahmad Moussalli Scholarship by Z Moukahal Foundation
- Dr. Albert Kuran Dubai Alumni Endowed Scholarship
- Dr. Ali Abu-Alfa and Mrs. Leila Hachicho Scholarship
- Dr. Ali and Rima Bazarbachi Endowed Scholarship
- Dr. Anne-Marie Irani Scholarship
- Dr. Anny P. Bakalian Scholarship
- Dr. Antoine Zahlan Endowed Scholarship

- Dr. Dimitri Bitar Endowed Scholarship
- Dr. Fadlo Raji Abu-Haydar Endowed Scholarship
- Dr. Fady and Mrs. Roula Dalloul Sharara Endowed Scholarship
- Dr. Farahe Maloof Medical Endowed Scholarship
- Dr. Farouk S. Idriss Endowed Medical Scholarship
- Dr. Fawwaz Habbal Endowed Scholarship
- Dr. Fawwaz Habbal Scholarship
- Dr. Fawzi N. Abu-Jamra Endowed Scholarship
- Dr. Fawzi N. Abu-Jamra Scholarship
- Dr. Francois and Jill Hamzé Scholarship in Medicine
- Dr. Fuad and Alice Trabulsi Endowed Scholarship
- Dr. Fuad Rafidi and Dr. Sawsan Barakat Endowed Scholarship
- Dr. Gebran and Mrs. Salma Farah Endowed Scholarship Fund
- Dr. Georges Fakhoury Endowed Scholarship
- Dr. Hanna C. and Ann K. Kutteh Endowed Scholarship
- Dr. Harry G. Dorman Scholarship
- Dr. Hind Nadim Moussa Scholarship
- Dr. Jamil Karsh Endowed Scholarship
- Dr. Jean Moadie Memorial Endowed Scholarship
- Dr. John I. Makhoul Endowed Scholarship
- Dr. John I. Mirhij Scholarship
- Dr. Joseph Yammine Endowed Scholarship
- Dr. Khaled Zreik and Family Endowed Scholarship
- Dr. Marcel and Jane Saghir Endowed Scholarship
- Dr. Marwan Mneimneh Scholarship
- Dr. Marwan S. Abouljoud Scholarship
- Dr. Maurice H. Bisharat Endowed Scholarship
- Dr. Melhim Bou Alwan Scholarship
- Dr. Michael A. Shadid Endowed Scholarship
- Dr. Mohamad and Nada Haidar Endowed Scholarship
- Dr. Mohammad Chatah Endowed Scholarship
- Dr. Mohammad Yaghi Endowed Scholarship
- Dr. Muhammad Hijazi and Mrs. Nuha Mikdashi Endowed Scholarship
- Dr. Nada T. Kobeissi Endowed Scholarship
- Dr. Naji Sahyoun Memorial Endowed Scholarship
- Dr. Nouhad Kronfol and Family Endowed Scholarship
- Dr. Osama Elansari Endowed Scholarship
- Dr. Randa Antoun Endowed Scholarship
- Dr. Reem Renno Scholarship
- Dr. Robert A. Chahine Endowed Scholarship
- Dr. Saad Hamdi AlZaim and Family Endowed Scholarship
- Dr. Saad Hamdi AlZaim and Family Scholarship
- Dr. Said H. Sayegh Endowed Scholarship
- Dr. Salim Musalli Pasha Scholarship
- Dr. Sami Kabbani Endowed Scholarship

- Dr. Samia J. Khoury and Dr. Mohamed H. Sayegh Endowed Scholarship
- Dr. Samir and Cynthia Fakhry Endowed Scholarship
- Dr. Samuel White Endowed Scholarship
- Dr. Shahrokh Mokhtari Memorial Endowed Scholarship
- Dr. Varouj and Lena Altebarmakian Endowed Scholarship
- Dr. William Carslaw Memorial Scholarship
- Dr. Yakub Inati Scholarship
- Dr. Yusuf K. Hitti Endowed Scholarship
- Dr. Zoheir and Hana Abdelbaki Scholarship
- Dr. Zuhayr A. Moghrabi Scholarship
- Drs. Abdullah and Daoud Sulaiman Kassir Memorial Endowed Scholarship
- Drs. Adel and Larry Anna Afifi Endowed Scholarship
- Dunia Foundation Endowed Scholarship
- Dunia Foundation Scholarship
- E. Maxine Bruhns Endowed Scholarship
- Earthquake Relief Scholarship Fund
- Eileen Page Medical Endowed Scholarship
- Eissa A. Bateh and Brothers Foundation Scholarship
- El Khalil Foundation Scholarship
- Elaine Hagopian Scholarship
- Elia M. Elia Family Graduate Business Scholarships at OSB/AUB
- Elias A. Husni Endowed Scholarship
- Elias and Nada Doumet Scholarship
- Elias and Shirine Matta Endowed Scholarship
- Elias Aractingi Scholarship
- Elias Khoury Excellence Award in Literary Studies and Humanities
- Elias Salloum Scholarship
- Elie Khalil Khouri Endowed Scholarship
- Elissar Farah and Assaad Antonios Endowed Scholarship
- Elsa and Stanley Kerr Scholarship
- EMBA Chapter Scholarship
- Emile and Helen Chartouni Endowed Scholarship
- Emile and Helen Murr Dabaghi Endowed Scholarship
- Enno and Hildegard Ercklentz Endowed Scholarship
- Evergreen Community School Scholarship
- Faculty of Medicine Education Hardship Fund
- Fadi and Naila Majdalani Scholarship
- Fadil and Nijmeh Khalil Matta Endowed Scholarship
- Fadwa Nassif Taleb Endowed Scholarship
- FAFS 50Th Anniversary Graduate Student Endowed Fund
- FAFS Student Solidarity Fund
- Faisal AlMutawa Endowed Scholarship
- Faisal AlMutawa Scholarship
- Farid and Hala Homsi Scholarship
- Farid I. Haurani Endowed Scholarship

- Farid Sa'd Graduate Endowed Scholarship in Science-Technology
- Faris S. Malouf Memorial Endowed Scholarship
- Farouk and Amal Jabre Endowed Scholarship
- Farouk Kamal Endowed Scholarship
- Farouk W. Agha Scholarship
- FAS General Scholarship
- Fatima Hamdan Daher Endowed Scholarship
- Fatima Hamdan Daher Scholarship
- Fatimah Abu-Ghazaleh Scholarship
- Fawwaz Ulaby and Jean Cunningham Endowed Scholarship
- Fawzi and Lili Farah Endowed Scholarship
- Fawzi M. Yaqub Endowed Scholarship
- Fayette and Toufic Dabboussi Endowed Scholarship
- Faysal and May El Khalil Scholarship
- FEAMS Distinguished Student Endowed Award
- FFA Private Bank Scholarship
- Financial Aid to Medical Students
- Fingerprints Endowed Scholarship Fund
- Firas Jalloul Scholarship
- Fouad G. Khouri Scholarship Fund
- Fouani Family Scholarship
- Francis Asbury Palmer Scholarship Fund
- Francois and Jill S Hamze Endowed Scholarship
- Francois and Jill S Hamze Scholarship
- Frank H. Teagle, Jr. Memorial Endowed Scholarship
- Friends of the AUB Museum Endowed Scholarship-in honor of Dr. Leila Badre
- Fuad and Noha Hamzeh Endowed Scholarship
- Fuad Es-Said Scholarship
- Fuad Muhsin Afnan Memorial Fund
- Fuad Nakhleh Endowed Scholarship
- Fundación Kareema Scholarship
- Gabrielle Faddoul Scholarship
- Gaza Endowed Scholarship
- General Scholarship Fund
- General Wissam Al Hassan Endowed Scholarship in Computer and Communication Engineering
- General-Centennial
- George and Alexandra Fattouh Endowed Scholarship
- George and Wafaa El-Azar Scholarship
- George Faris Memorial Scholarship
- George Issa Hazbun Memorial Scholarship
- George Salibi Scholarship
- Georges Makhoul Endowed Scholarship
- Ghaleb and Rima Daouk Endowed Scholarship
- Ghassan Abou-Alfa and Eileen O'Reilly Endowed Scholarship
- Ghassan Al-Mahasini Scholarship

- Ghassan and Manal Saab Endowed Scholarship
- Ghassan and Manal Saab Scholarship
- Ghassan Jdeed Scholarship Fund
- Gladys Brooks Endowed Scholarship
- Gordon H. Ward Scholarship
- Graduate Regional Scholarships-Ford Foundation Match
- H. Morton Esty Endowed Scholarship
- H.H. Mar Ignatius Zakka Iwas Endowed Scholarship
- Habib B. Yared Memorial Endowed Scholarship
- Habib Jaafar Scholarship
- Hadhramout Foundation - AUB Scholarship
- Hana Jabsheh Scholarship
- Hani AboulJabine Scholarship
- Hani Qaddumi Foundation Scholarship
- Hanna Bisharat Endowed Scholarship
- Hanna Said Choulji Scholarship
- Harold B. Hoskins Endowed Scholarship
- Harry G. Dorman, Jr. and Virginia Whitney Dorman Memorial Scholarship
- Hasan and Nehmat Saab Scholarship
- Hasan Said Abdallah Scholarship
- Hassan Fahmy Jamal Endowed Scholarship
- Hassan Husseini – Eastern Province Endowed Scholarship
- Hassan Mohamed Halaby Endowed Scholarship
- Hassan Smadi Endowed Scholarship
- Hassib J. Sabbagh Endowed Scholarship
- Hazar - AUB Development Scholarship
- Hazel Reed Baumeister Trust Endowed Scholarship
- Hazem and Nadine Haddad Scholarship
- Hazimeh S. Rasi Scholarship Fund
- Helene Hanna Ayoub Endowed Scholarship
- HH Shaikh Khaled Bin Hamad Al-Thani Endowed Scholarship
- HH Sheikh Dr. Sultan Bin Mohamed Al Qasimi Endowed Scholarship
- HH Sheikh Dr. Sultan Bin Mohamed Al Qasimi Endowed Scholarship for FHS-Ford Foundation Match
- HH Sheikh Dr. Sultan Bin Mohamed Al Qasimi Endowed Scholarship-FAFS
- Hisham and Lina Jaroudi Scholarship
- Howard W. Page Endowed Scholarship
- HRH Father Emir Sheikh Hamad Bin Khalifa Al Thani Sch. via Embassy of Qatar
- HRH Prince Talal Ben Abdel Aziz Endowed Scholarship
- Huda Onsi Zaabri Scholarship
- Husni Ahmad Sawwaf Endowed Scholarship
- Hussein and Leila Ammar Scholarship
- Husson Halabi Yassir Foundation Scholarship
- Ibrahim and Norma El-Chammas Endowed Scholarship
- ieng Impact Scholarship
- IFANCA Scholarship

- Ihsan Omar Baalbaki AUB Scholarship
- Imad Gholmieh Endowed Scholarship
- Imad Taher Current Scholarship
- Imad Taher Endowed Scholarship
- IMAR Trading and Contracting Scholarship
- Impact Scholarship
- Intermedic (Jean Farah & Co.) Sal Scholarship
- Irani-Schwartz Endowed Scholarship
- Isam Ibrahim Nubani and Khalil Ibrahim Noubani Endowed Scholarship
- Isam Salfiti Scholarship
- Issam and Najat Saliba Scholarship
- J.J. Arakelyan Endowed Scholarship
- Jabir Shibli Endowed Scholarship
- Jacques A. Nasser Endowed Scholarship
- Jad Moghaizel Endowed Scholarship
- Jalal and Gabrielle Saad Endowed Scholarship
- Jalal and Gabrielle Saad Scholarship
- Jamile Dagher Jureidini Endowed Scholarship
- Jassim Boodai Scholarship
- Jean and Rania Abouhamad Scholarship
- JH Syrian Students Scholarship
- Job Fair Committee Endowed Scholarship
- John Makhoul Scholarship
- John Miskoff Endowed Scholarship
- John Naim Hanna Dagher Scholarship
- Joseph Asmar Endowed Scholarship
- Joseph Daher Scholarship
- Juergen Lorenz Endowed Scholarship
- Julia Dodge Rea Scholarship
- Julia Ziadeh Endowed Scholarship
- Julian Farah Yazbek Current Scholarship
- Julian Farah Yazbek Endowed Scholarship
- Jusoor - AUB Scholarship
- Kamal and Nuha Hemady Endowed Scholarship
- Kamel Abdelrahman Endowed Scholarship
- Kamel Dajani Memorial Scholarship
- Kamel, Aliya, and Nassim Saidi Endowed Scholarship
- Karagulla Endowed Scholarship
- Karim Habre Endowed Scholarship
- Karim Karagulla Scholarship
- Karim W. and Dora Nasser Endowed Scholarship
- Kasim and Khazneh Shehadeh Scholarship
- Kasim O. Ardati and Najah R. Zayyani Endowed Scholarship
- Katrine and Ramez 10.8 President's Athletic Scholarship
- Katrine and Ramez Hakim Scholarship

- Khadijah Sabahat Kahhalet Takieddine Endowed Scholarship
- Khaled Akkawi Scholarship
- Khaled and Mona Miqdadi Scholarship Fund
- Khaled El-Yashruti Memorial Endowed Scholarship
- Khalil and Adele Haddad Endowed Scholarship
- Khalil Barrage Family Endowed Scholarship
- Khalil Barrage Family Scholarship
- Khalil Bsheer Memorial Endowed Scholarship
- Khalil Tabet Memorial Endowed Fund
- Khawla Hobeika Rizk Endowed Scholarship
- Khushroo N. J. Patel Memorial Endowed Scholarship
- KPMG Middle East Impact Scholarship
- Kuzbari Family Scholarship
- Laila Al Zein Scholarship
- LASeR - AUB Graduate Scholarship
- Laurice Khoury Maalouf Scholarship
- Lea Foundation Scholarship
- Lebanese International Finance Executives (LIFE) - AUB Scholarship
- Leo and Arminé Aroian Merit Scholarship
- Lina Naaman Azhari Endowed Scholarship
- Liu Shiming Endowed Scholarship
- Liu Shiming Scholarship
- LNI - AUB Endowed Graduate Scholarship
- Loreen Rihani Scholarship
- Lulu Hasan Scholarship
- Lydia Haddad Tannous Endowed Scholarship
- Magida El-Roumi Endowed Scholarship
- Maha and Talal Shair Endowed Scholarships
- Maha and Talal Shair Scholarships
- Mahmoud Abbas Foundation - AUB Scholarship
- Mahmoud Dalal Endowed Scholarship
- Makram Ghassan Tweini Endowed Scholarship
- Malcolm H. Kerr Memorial Scholarship
- Malcolm Kerr Aid
- Maloof Family Endowed Scholarship Fund
- Mamdouha El-Sayed Bobst Endowed Scholarship
- Margaret and Joseph Nader Endowed Scholarship
- Margit Bliss Orange Scholarship
- Maria Aziz Scholarship
- Marie El-Khoury Scholarship in Fine Arts
- Marwan A. Takieddine Scholarship
- Marwan and Lynne Muasher Endowed Scholarship Fund
- Marwan and Mary Abouljoud Endowed Scholarship
- Mary and Archie S. Crawford Scholarship
- Mary Bajada Memorial Scholarship for Women

- Mary R. Robinson Endowed Scholarship
- Marzouk Jassim Al Marzouk Scholarship
- Matiel Mogannam Endowed Scholarship
- May El Khalil Endowed Scholarship for Exceptional Athletes
- May El Khalil Scholarship for Exceptional Athletes
- Maysoon Akrawi Dowling Scholarship
- Mazen Dajani Scholarship
- MD Class of 1994 Scholarship
- MD Class of 1998 Fund
- MEAB OSB Student Solidarity Fund
- Medical Alumni Endowed Scholarship
- Medical Students Scholarship
- Melhem and Tamani Zein Scholarship
- MEMA Scholarship for Medical Students
- Michael N. Malouf Endowed Scholarship
- Michel Alexandre Namour Memorial Endowed Scholarship
- Michel Rais Endowed Scholarship
- Micheline and Francois Nader Endowed Scholarship
- Micheline and Francois Nader Scholarship - Current
- Midis Group Scholarship Fund
- Mikati Foundation Scholarship
- Mikhail and June Nasrallah Endowed Scholarship
- Miles & Nancy Lovelace Scholarship
- Mindsets Scholarship
- MM Scholarship for Nursing
- Mohamad (Oliver) Zeitoun Endowed Scholarship
- Mohamad Ali Zameli and Dina Tabbara Endowed Scholarship
- Mohamad S. Dimashkieh Endowed Scholarship
- Mohamad-Kheir and Wahiba Salem Endowed Scholarship
- Mohammad Al Saadi Scholarship
- Mohammad Hassan El-Chaar Memorial Scholarship
- Moise Antun Khayrallah Endowed Scholarship
- Moise Antun Khayrallah Scholarship
- Mona Chemali Khalaf Endowed Scholarship
- Morris Janowitz Endowed Scholarship
- Mounir R. Sa'adah Endowed Scholarship
- Moustapha and Falak Abouljoud Scholarship
- Mr. and Mrs. Mustafa Jundi Scholarship Fund
- Mr. and Mrs. Nafez Jundi Endowed Scholarship
- Mr. Nicholas Abumrad Scholarship Fund
- Mrs. Annie and Dr. Munir Nasr Endowed Scholarship
- Mrs. Daniel Bliss Endowed Scholarship
- Mrs. Ibtissam Akkad Elansari Endowed Scholarship
- MSFEA Class of 1964 Endowed Scholarship
- MSFEA Class of 1966 Endowed Scholarship

- MSFEA General Scholarship
- Muneef Assaf Farah Endowed Scholarship
- Munib and Angela Masri Endowed Scholarship
- Murex Endowed Scholarship Fund
- Musa and Amal Freiji Endowed Scholarship
- Mustapha and Leila Bissat Endowed Scholarship
- Nabil & Billie Sakkab Scholarship
- Nabil Kobeissi Scholarship
- Nada Debs Endowed Scholarship
- Nada Mneimneh Scholarship
- Najeeb N. Meshaka Memorial Endowed Scholarship
- Najib Ibrahim Salha Scholarship
- Najjad Zeenni Scholarship
- Nasser Jalal Bitar Scholarship
- Nasser Saidi Scholarship
- Nazih and May Taleb Endowed Scholarship
- Near East Scholarship Fund
- Nemeh and Maha Sabbagh Endowed Scholarship
- Nerces and Diana Dermenjian Endowed Scholarship
- New Hope Scholarship
- Nicholas and Claudia Barakat Scholarship
- Nicola Ziadeh Endowed Scholarship Fund
- Nimr Tuqan Prize in Pathology
- Nizam Shammas Scholarship
- Nizar Banat Memorial Scholarship
- North Lebanon Scholarship Fund
- Nouhad and Rasha Daouk Scholarship
- Noura Hatem Juffali Endowed Scholarship
- Noureddine Ghaziri Scholarship
- Novus Aviation Capital Scholarship
- Odette Atalla Endowed Scholarship
- Odette Atalla Scholarship
- Oliver Maki Scholarship
- OSB General Scholarship
- OSB International Student Scholarship
- OSB International Student Scholarship
- Osmane Aidi Scholarship Fund
- Oussama Aboughazale Scholarship
- Palestinian Cultural Club Scholarship Fund
- Palestinian Students Emergency Scholarship
- Pauline Nadim Makdisi Memorial Scholarship
- Petrofac Fund for Engineers
- Philip and Mary G Hitti Endowed Scholarship
- Pierre and Maria Abousleiman Endowed Scholarship
- Pilgrim Endowed Scholarship

- President's Club Endowed Scholarship
- President's Fund for Exceptional Scholars
- Prof. Majid and Mrs Alice Fakhry Endowed Scholarship
- Professor Khalil Malouf Memorial Scholarship Fund
- Professor Maan Z. Madina Endowed Scholarship
- Professor Nabil and Mrs. Huda Dajani Endowed Scholarship
- Quasi-Endowment - Restricted To General Scholarships Fund
- Quencia Capital Scholarship
- R. Bayly Winder Endowed Scholarship
- Rabih and Rana Hamze Endowed Scholarship
- Rabih Fakhreddine Endowed Scholarship
- Rada and Mutaz Sawaf Current Scholarship
- Rada and Mutaz Sawaf Endowed Scholarship
- Rafeek Program Scholarship
- Raffy Manoukian Scholarships
- Rafic Bawab Scholarship
- Rafic Gazzaoui Scholarship
- Rafic Hariri Endowed Scholarship for Nursing Students
- Rafic Hariri School of Nursing General Scholarship
- Raja Tannous Endowed Scholarship
- Raja Trad Dubai Alumni Endowed Scholarship
- Rami Bitar Scholarships
- Ramsey U. Sheikh Scholarship
- Ramzi F. Daouk Memorial Endowed Scholarship
- Ramzi Fawaz Scholarship
- Ramzi K. Alamuddin and Asma M. Fathallah Endowed Scholarship
- Ramzi Kteily Scholarship
- Ramzi Mohamad Safadi Endowed Scholarship in FAS
- Ramzi Mohamad Safadi Scholarship in FHS
- Ramzi Raad Advertising Scholarship
- Rana Ahmad Hajjeh Scholarship
- Randa El-Sayed and Naseem Haffar Fingerprints Endowed Scholarship
- Ray R. Irani Endowed Scholarship
- René Saade Scholarship
- Reverend Dr. Lois A. Aroian Endowed Scholarship
- Riad and Hassana Sadik Endowed Scholarship
- Riad Kamal Scholarship
- Riad Mneimneh Scholarship
- Ricardo and Youmna Karam Scholarship
- Rida Irani Memorial Endowed Scholarship
- Rima Abdul Jabbar Endowed Scholarship
- Rima Aiko and Maya Farah Makhoul Financial Aid Fund
- Rima Moussallem Otrakji Current Scholarship
- Rima Moussallem Otrakji Endowed Scholarship
- Robert and Mary B. Shea Endowed Scholarship

- Robert and Myrle Linnell Endowed Scholarship
- Rony Akiki Scholarship
- Roosevilt and Georgette Fattouh Endowed Scholarship Fund
- Roula and Fouad Tamer Scholarship
- RSM Endowed Scholarship
- Ruhi K. Hindawi Endowed Scholarship for Medical Students
- S. M. Minassian Endowed Scholarship
- S. Rayyis and A. Afifi Endowed Scholarship
- Saadat Hasan Endowed Scholarship
- Sabra Purtill Endowed Scholarship
- Sadie B. Latouf Endowed Scholarship
- Said and Angela Hitti Endowed Scholarship
- Said and Insaf Agha El Shami Scholarship
- Said and Marianne Darwazah Scholarship
- Salem Suleiman Al-Othman Memorial Endowed Scholarship
- Salim and Hafıza Arnaout Endowed Scholarship
- Salwa Es-Said Endowed Scholarship
- Samer and Hiba Al-Rayyes Endowed Scholarship
- Samer and Hiba Al-Rayyes Scholarship
- Sami Moussa Current Scholarship
- Sami Moussa Endowed Scholarship
- Sami Mubarak Endowed Scholarship
- Sami Sidawi Endowed Scholarship
- Samia Ghobril Endowed Scholarship
- Samia Nadim Abou Samra Scholarship
- Samia Taji Farouki Arts and Sciences Merit Scholarship
- Samih Alami Memorial Endowed Scholarship
- Samir & Salwa Khoury Scholarship
- Samir Ahmad Zaabri Scholarship
- Samir and Malak Abdulhadi Scholarship
- Samir El Khatib Current Scholarship
- Samir El Khatib Endowed Scholarship
- Samira AbdelKader Kalache Scholarship
- Samira Fadli Scholarship Fund
- Samira Kanso Sayegh Scholarship
- Samuel B. and Grace H. Kirkwood Scholarship
- Samuel Van Allan Undergraduate Scholarship
- Sana A. El-Hajj Career Readiness Program Merit Scholarship Endowed Fund
- Sana A. El-Hajj Career Readiness Program Merit Scholarship Fund - Current
- Sandouk El-Zakat Scholarship
- Sansabil AbuRaslan Current Scholarship
- Sansabil AbuRaslan Endowed Scholarship
- Saoud Gharizi Scholarship
- Sarah Al-Turki Endowed Scholarship
- Sarah and Rafic Kaaki Endowed Scholarship

- Selma Shaheen Nursing Scholarship
- Serene Dajani Memorial Scholarship Fund
- Shafic Melhem Shabshab Endowed Scholarship
- Shafik and Mary Tumeh Endowed Scholarship
- Shaheen Brothers Endowed Scholarship
- Shawki Gholmieh Endowed Scholarship Fund
- Sheikh Mohamad Soleiman Scholarship
- Shireen Abu Akleh Endowed Memorial Scholarship
- Shireen Abu Akleh Memorial Scholarship
- Shocair-Reda Scholarship
- Sidani Scholarship Fund
- Simone Fattal and Etel Adnan Endowed Scholarship
- Sleyman and Sofia Trabulsi Endowed Scholarship
- Souad Malaeb Zobian Scholarship
- Soumaya Makdisi Khuri Endowed Scholarship
- Spring Scholarship
- Stella B. Kern Endowed Scholarship
- Stephen A. Miller Endowed Scholarship
- Strategy& Endowed Scholarship
- Student Solidarity Scholarship
- Suad Joseph Endowed Scholarship
- Sudan Students Endowed Scholarship
- Sufyan Saleh Scholarship
- Suhayl Assaf Farah Endowed Scholarsip
- Suhayla Harami Georges (Dipl Nursing 1956) and George Georges (MD 1990) Scholarship
- Suheil and Shermine Bulos Endowed Scholarship
- Sulayman Salim Alamuddin Memorial Endowed Scholarship
- Suliman S. Olayan Endowed Scholarship
- Syria Resilience Fund
- T.A.K. Scholarship
- Taawon Scholarship
- Talal and Roula El-Khalil Endowed Scholarship
- Talal Nasereddin Scholarship
- Taleb Scholarships
- Tamari Foundation Scholarship
- Tamim and Lamis Sahli Endowed Scholarship
- Teddy and Diana Abdo Endowed Scholarship Fund
- Teddy D. Abdo Scholarship
- Terry and Pierre Aboukhater Endowed Scholarship
- Teta Endowed Scholarship
- The Advancement of Women in Engineering Scholarship
- The Aisha Al Mana Endowed Graduate Scholarship for Women in Nursing and the Health Sciences
- The Altaf S. AlSabah Endowed Scholarship for Arab Women
- The Ameen and Sophia, Taft and Nelly Antoun Endowed Scholarship
- The Armenian Catholicosate of Cilicia Scholarship Fund

- The Armenian Students Endowed Scholarship Fund
- The AUB4Students Scholarships
- The Bassam Hamdi Al Aker Scholarship in Agricultural and Biosystems Engineering
- The Brummana High School Cultural Society Endowed Scholarship
- The CFI Scholarship
- The Cleveland H. Dodge Foundation Endowed Scholarship (Ford Foundation Match)
- The Cleveland H. Dodge Foundation Scholarship
- The Dorothy Fahs-Beck Endowed Scholarship Fund
- The Fadi and Maha Makki Scholarship
- The Family of Khaireddine El Jisr Endowed Scholarship
- The Family of Khaireddine El Jisr Scholarship
- The Family of Late Najib Daoud Sahyoun Endowed Scholarship
- The George and Mary Farah Endowed Scholarship
- The Hassun Scholarship
- The Herter Endowed Scholarship
- The Holcim Scholarship
- The Houda Idriss Memorial Endowed Scholarship Fund
- The IC Alumni Association - AUB Scholarship
- The Karim El Arab Endowed Scholarship for Distinguished Athletes
- The Karim El Arab Scholarship for Distinguished Athletes
- The Khayreddine and Adel Abdul-Wahab Endowed Scholarship
- The Landscape Middle East Scholarship
- The Makassed - AUB Scholarships
- The Maximilian E. & Marion O. Hoffman Endowed Scholarships
- The Maximilian E. & Marion O. Hoffman Foundation, Inc. Endowed Scholarship for Medical Students
- The Medicine Class of 1982 Endowed Scholarship Fund
- The Nada Suheil Muasher Endowed Scholarship Fund
- The Nemr and Helene Chamoun Scholarship
- The Peggy Smith Scholarship
- The Ramez Mikdashi Endowed Scholarship
- The Sallaum Humanity Foundation Scholarship
- The Sami Kassar Scholarship
- The Spark of Hope Foundation Scholarship
- The State of Qatar Endowed Scholarship
- The Suad Husseini Juffali Endowed Scholarship
- The Tarraf Foundation Scholarship Program
- The Taufik Pacha Moufarrige Scholarship Award
- The Wadih Jureidini Endowed Scholarship
- The Wellspring Learning Community Endowed Scholarship
- Tony and Lak Bikhazi Scholarship
- Toufic and Oumaya El Zouheiri Endowed Scholarship
- Transmed Scholarships
- Trustee Amabel James Nursing Scholarship
- Trustee Amabel James Student Solidarity Scholarship
- ULYP Scholarship

- Unifert Endowed Scholarship
- USFC Endowed Fund
- Violette Haddad Kteily Memorial Endowed Scholarship
- Viviane Tabar Scholarship
- WAAAUB - Oman Chapter Scholarship
- WAAAUB - Abu Dhabi Chapter Endowed Nursing Scholarship
- WAAAUB - Abu Dhabi Chapter Endowed Scholarship
- WAAAUB - Abu Dhabi Chapter Endowed Scholarship for FAFS
- WAAAUB - Abu Dhabi Chapter Endowed Scholarship for FHS
- WAAAUB - Abu Dhabi Chapter Endowed Scholarship for Undergraduate FHS
- WAAAUB - Abu Dhabi Chapter Medical Sciences Endowed Scholarship
- WAAAUB - Abu Dhabi Chapter Scholarship
- WAAAUB - Atlanta Chapter Endowed Scholarship
- WAAAUB - Australia Chapter Scholarship
- WAAAUB - Dubai and Northern Emirates Chapter Endowed Scholarship
- WAAAUB - Dubai and Northern Emirates Chapter Scholarship
- WAAAUB - Eastern Province Chapter Endowed Scholarship
- WAAAUB - Engineering and Architecture Chapter Endowed Scholarship
- WAAAUB - Greece Chapter Endowed Scholarship
- WAAAUB - Houston Chapter Endowed Scholarship
- WAAAUB - Jeddah Chapter Endowed Scholarship
- WAAAUB - Kuwait Chapter Endowed Scholarship
- WAAAUB - Kuwait Chapter Scholarship
- WAAAUB - Mount Lebanon Branch Scholarship
- WAAAUB - New England Chapter Endowed Scholarship
- WAAAUB - New York Tristate Area Chapter Endowed Scholarship
- WAAAUB - Northern California Chapter Endowed Scholarship
- WAAAUB - Oman Chapter Endowed Scholarship
- WAAAUB - Ottawa Chapter Scholarship
- WAAAUB - Philadelphia/Delaware Valley Chapter Endowed Scholarship
- WAAAUB - Qatar Chapter Current Scholarship
- WAAAUB - Qatar Chapter Endowed Scholarship
- WAAAUB - Riyadh Chapter Endowed Scholarship
- WAAAUB - Riyadh Chapter Endowed Scholarship for FHS
- WAAAUB - Swiss Chapter Endowed Scholarship
- WAAAUB - Syria Chapter Scholarship
- WAAAUB - UK Limited Endowed Scholarship
- WAAAUB - Dubai Chapter Student Aid Scholarship
- WAAAUB - Greater Los Angeles Chapter Endowed Scholarship Fund
- WAAAUB - Kuwait Alumni Chapter Athletics Scholarship
- WAAAUB - New England Chapter - Shukri Khuri Endowed Scholarship
- WAAAUB - Orange County Chapter Endowed Scholarship
- Wadi N. Suki, MD Scholarship
- Wael Jalal Bitar Pay it Forward Scholarship
- Wa'el Nohad Chehab Endowed Scholarship for Business

- Wahida and Dina Mikati Scholarship
- Walid and Nada Abushakra Endowed Scholarship
- Walid Chammah Scholarship
- Walid Joumblatt Endowed Scholarship
- Wellspring Learning Community Employees Scholarship
- WHISH Fund
- William and Aida Haddad Endowed Scholarship for Engineering
- William and Huda Zoghbi Endowed Scholarship for Medical Students
- William and Huda Zoghbi Scholarship
- William J. Gossen Fund
- William Mitri Endowed Scholarship
- Wissam and Hiba Nesr Scholarship
- Women's Auxiliary Nursing Scholarship
- Women's League Scholarship
- Yasser and Lala Ezzedine Scholarship
- Yasser and Nouha Rabah Endowed Scholarship
- Yasser and Zeina El-Hajj Endowed Scholarship
- Youssef Matar and Madeleine Ghantous Matar Scholarship
- Yousuf Mansour Endowed Scholarship
- Yusef Abu Khadra Endowed Scholarship
- Yusuf and Najat Zarour Dubai Alumni Endowed Scholarship
- Yusuf Mansour Scholarship
- Zahra Bissat Endowed Scholarship Fund
- Ziad and Lana Halabi Endowed Scholarship
- Ziad and Ruan Elkhalil Scholarship
- Ziad Beydoun Endowed Memorial Scholarship
- Ziad Korban Endowed Scholarship
- Zohrab A. Kaprielian Endowed Scholarship
- Zouheir Chafic Daouk Memorial Endowed Scholarship
- Zoya Rais Endowed Scholarship

Fellowships

- Anonymous Pierre Amin Gemayyel Endowed Doctoral Fellowship in MSFEA
- Dr. Ibrahim Salti Endocrinology and Metabolism Fellowship
- Dr. John I. Makhoul Endowed Fellowship
- Dr. Ziad Salem and Mrs. Hana AbuKhadra Oncology Fellowship Endowed Award
- Ghana Kamel Abdel Rahman Endowed Fellowship in Metabolic Bone Disorders
- John Waterbury Endowed Fellowship Fund
- Louise L. Massabki Fellowship-Scholarship
- Maroun Semaan Foundation Endowed PhD Fellowship
- Marwan Chedid Endowed Fellowship
- Mohamad Makhzoumi Endowed Fellowship Fund
- Moufid Farra Endowed Education Fund
- MSFEA Research Endowment
- Munib and Angela Masri Geriatric Medicine Fellowship Award
- Nayel Al Harith Endowed Fellowship
- Professor Maan Z. Madina Endowed Fellowship
- Shamma'a Gastroenterology Fellowship Endowed Fund
- The Medicals International Refractive Surgery Fellowship Award
- Zakhem Endowed Fellowship

University Prizes and Awards

Abdul Kader Sbaiti Spirit in Sports Endowed Award: Awarded to a student who is involved in varsity sports and shows exemplary team spirit, fair play, and integrity in sports.

Brummana High School Cultural Society Excellence Award: Awarded to the top graduate student who is a Brummana High School alumnus with a high average.

Distinguished Student-Athlete Endowed Award: Awarded on equal basis to both female and male athletes who have excelled in sports; top two winners of local or regional championships.

Dr. Hassan Abbas Endowed Award in Citizenship and Social Justice: Awarded to a graduating student who has a record of academic excellence, shows a commitment to citizenship, social justice, and freedom as well as promotes tolerance and inclusivity. The student must be receiving a minimum of 20 percent financial aid to qualify for the award.

Farid Saab Student Athlete Award: Awarded to a full-time student who has been a varsity athlete for at least one year, maintains good academic standing, and has been a member of an athletic team that is one of the top two ranked teams in the national league in the previous year. Awardee should be expected to have earned regional and international awards and/or medals and will embody the very highest standards of sportsmanship and leadership.

Mary Jones Memorial Award: Awarded to a graduating female student who exemplifies outstanding commitment to community service and volunteerism.

Mercury Prize for Distinguished Athlete: Awarded to qualified athletic student(s) who is/are professionally involved in a sport as evaluated by the AUB Athletic Department. This award will be used to cover tuition fees.

Penrose Award: Non-cash honorary award made to the outstanding graduate of each faculty on the basis of scholarship, character, leadership, and contribution to university life.

Salwa Siniora Baasiri Exceptional Volunteer of the Year Endowed Award: Awarded to one undergraduate student who meets the following criteria as evaluated by AUB's director of CCECS: maintains a high academic standing, volunteers in innovative areas leading to a positive impact, dedicates a substantial number of volunteer hours, demonstrates traits of reliability, integrity, commitment, and teamwork, and demonstrates commitment to diversity, equity, and inclusion.

WAAAUB - Abu Dhabi Chapter Student Endowed Award: Awarded to the student with the highest GPA in each faculty and who graduated from a high school in Abu Dhabi.

Faculty of Agricultural and Food Sciences

Abdul Hadi Debs Endowment Award for Academic Excellence: Awarded to a graduating student who has an outstanding academic record. The award is given to one student in the Faculty of Agricultural and Food Sciences, one in the Faculty of Arts and Sciences, and one in the Maroun Semaan Faculty of Engineering and Architecture.

Aiman Suleiman Student Development Fund: Awarded to a student or a team who receive/s the highest ranking for the capstone project.

Ali Nehme Nesr Student Award: This is a competitive, graduate or undergraduate level award for research or development thesis/capstone/FYP topics in the MENA and Sub-Saharan regions. All FAFS disciplines are eligible to be considered as long as the topics revolve around WEFRAH nexus (commodities, value chain, processing, marketing, product innovation, or any related topic in emerging markets in the MENA region and Sub-Saharan Africa specifically).

Beit el Baraka & AUB Keepers of the Land Award: This award will be conferred on a final year project competition in agribusiness, agriculture, and nutrition and food science.

Boecker Prize for Excellence: The Three Minute Thesis (3MT®) is an international competition celebrating the exciting research conducted by graduate students, developed by the University of Queensland in 2008, the competition requires contestants to condense their research into a three-minute, one-slide presentation for a non-specialist audience.

Dean Edgecombe Memorial Prize: Awarded to the outstanding student in third year agriculture.

Dean Nuhad Daghir FAFS Graduate Student Award: Awarded to the graduating student with a master's degree in the animal science or poultry science major at the Faculty of Agricultural and Food Sciences who succeeded in accumulating the highest GPA over his/her graduate studies at AUB.

Dean Thomas M. Sutherland Prizes: Awarded annually at graduation to outstanding FAFS graduates. Awarded to the undergraduate recipient of the Penrose Award, as well as the most outstanding graduate student with the best thesis.

Director Fawwak Slieman – Dean John Fischer Endowed Award: awarded to a graduating undergraduate student who meets the following criteria: a 3rd or 4th year student who has committed to a FAFS major, demonstrates financial need and academic promise in the fields of agriculture, food or water security in the Middle East region or Africa.

Dr. Musa Najib Nimah Endowed Award for Academic Excellence: Awarded to an undergraduate student who has the highest cumulative GPA.

Dr. Yusuf Abou Jawdah Endowed Award: Awarded to third or fourth year undergraduate Agriculture student who has the highest cumulative average in at least three plant protection courses and shows a good understanding of the principles of food safety and sustainable agricultural development and demonstrates the ability to provide environmentally safe and innovative solutions/recommendations to deal with damaging and new or emerging plant pests.

Joana Haidar Award: Awarded to an AREC student who is environmentally aware and interested in agricultural practices and development.

Kashadurian Award: Awarded to a deserving student who was at AREC and has shown outstanding performance in farm skills and practices, and an appreciation for farm life at AREC.

Nahla Hwalla Endowed Award in Nutrition and Dietetics: Awarded to the graduating students in nutrition and dietetics who have exhibited collegiality and leadership with active engagement in student life to promote principles of nutrition and wellbeing.

Rabi and Samia Mohtar Award: Awarded to a graduating FAFS student who demonstrated leadership and potential to impacting the food and agriculture system and with a documented financial need.

Faculty of Arts and Sciences

A. Karim and Soraya El Cheikh FAS Student Leadership Award: Awarded to a female graduating student from FAS with a high cumulative GPA and who either demonstrated leadership in an AUB student club/FAS society or is a member of a varsity team.

Abdallah Lahoud Foundation Endowed Award: Awarded to an undergraduate student with the highest average in history or archeology.

Abdul Hadi Debs Endowment Award for Academic Excellence: Awarded to a graduating student who has an outstanding academic record. The award is given to one student in the Faculty of Agricultural and Food Sciences, one in the Faculty of Arts and Sciences, and one in the Maroun Semaan Faculty of Engineering and Architecture.

Ahmad and Fadwa Dannawi Award: Awarded to graduate MA or diploma student in Islamic studies who has demonstrated academic excellence and commitment.

Amal Saidi Memorial Prize: Awarded to a graduating senior excelling in the subject of anthropology or sociology.

Antoun Saadeh Cultural Foundation Best Student Essay Endowed Award: Awarded to the outstanding student essay on social reform in the Arab World.

Anwar Salman Award in Literature: Awarded to a graduating undergraduate student in Arabic in recognition of creative writing skills and exceptional research related to poetry and/or the literary works of Anwar Salman.

Burhan and Rabab Baalbaki Award in Elementary Education: The Burhan and Rabab Baalbaki Award in Elementary Education is conferred on a graduating student in elementary education who demonstrates excellence in his/her academic studies.

Dana Kambris Memorial Award: Awarded to a senior economics student leading community service through apolitical and a sectarian volunteering.

Dr. Assaad Khairallah Endowed Award in Social Sciences: Awarded to an undergraduate student pursuing a sociology/anthropology major or a graduate student in sociology who submits the best paper in Arabic during his/her period of study.

Dr. Basil Fuleihan Excellence Award in Economics: Awarded to the graduating student with a BA degree in economics who succeeded in accumulating the highest GPA over his/her period of study.

Dr. Elaine Hagopian Endowed Award: Awarded to a graduate or undergraduate student who has excelled in their studies in sociology or anthropology and has demonstrated a commitment to the pursuit of social justice and human rights issues.

Dr. Fuad Said Haddad award in Education: Awarded to the graduate MA student in education with the best thesis as selected by the Department of Education of the Faculty of Arts and Sciences.

Dr. Kassim Shaaban Excellence Award in the Faculty of Arts and Sciences: Awarded annually to an undergraduate student from the Bekaa Valley with the highest average in the Faculty of Arts and Sciences.

Dr. Mohammad Chatah Excellence Award: Awarded to the graduating student with a BA degree in political studies who succeeded in accumulating the highest GPA over his/her period of study.

Dr. Philip K. Hitti Prize: Awarded to the senior student in the Faculty of Arts and Sciences who, in the judgment of the president of the university, the dean of the faculty, and the chairman of the department concerned, exemplifies in her/his academic career the scholarly spirit of AUB at its best.

Dr. Randa Antoun Annual Award for Public Service and Civic Engagement: Awarded to an outstanding senior student in PSPA.

Educators' Endowed Award in Education: Awarded to one or two outstanding in the Department of Education in acknowledgment of their achievement. These students should have known innovation, performed community service, and maintained good academic standing.

FAS Mamdouha S. Bobst Student Award for Civic Engagement: Awarded to a graduating student who has a record of academic excellence and has shown a commitment to civic engagement.

Ghazi and Maya Nourallah Endowed Innovation Award: Awarded to undergraduate student(s) in computer science or electrical and computer engineering (ECE). This award follows a contest between the two departments, where each year, one team (up to three contestants per team) will win, either from the Computer Science (CMPS) department or the ECE Department.

Hana Jabsheh Endowed Award: Awarded to an undergraduate student majoring in the department of Fine Arts and Arts History, with the highest GPA.

Haykal Media Award in Arabic: Awarded to the top graduating student majoring in Arabic with the highest cumulative GPA during his/her undergraduate studies.

HE Ghassan Al-Rashash Excellence Award in Political Studies: Awarded to a graduating student with the highest GPA in the graduate program in political studies.

Hussein Oueini Memorial Awards: Awarded equally between a graduating senior student in PSPA with the highest GPA and the best thesis written during the same academic year, as recommended by the department and dean.

Ibrahim and Loulu Durr Endowed MRVP Award: Two awards given annually to two students (one male, one female) enrolled in MRVP who have demonstrated outstanding medical research capabilities, based on the MRVP committee evaluation. Special consideration will be given to students who have shown outstanding research capabilities in the biochemistry field.

Jack and Hoda Afram Manok Endowed Award: Awarded to a graduating student in education with the highest GPA.

Kalim Bechara Award: Awarded to an undergraduate student majoring in studio arts who shows promise in artistic creativity.

Kamel Mrowa Award in Media Studies: Awarded to a graduating student with a master's degree in media studies who demonstrates outstanding academic achievement and successfully completes his/her end-of-year project or thesis with a topic revolving around the past, present, or future of journalism.

Khawla Hobeika Rizk Endowed Award in Education: Awarded to the top senior female student in education.

Lebanon Renaissance Foundation Award: Awarded to one or more graduating students in political studies, economics, social and behavioral sciences, public administration, or history with the highest academic achievements.

M&C Saatchi MENA Award: Awarded to one or more graduating students in the media studies program, Department of Sociology, anthropology and media studies, with the highest academic achievements.

Majida Sanioura Memorial Prize in Humanities: Awarded to a top graduate senior in arts and humanities at the Faculty of Arts and Sciences.

Makhlouf Haddadin Award for the Outstanding Chemistry Undergraduate Student: Awarded at the end of each academic year to a graduating senior chemistry student who has demonstrated research capabilities through a paper or project and has an excellent academic record.

Makhlouf Haddadin Award for Outstanding Chemistry Graduate Student: Awarded at the end of each academic year to a graduating MS chemistry student with outstanding research and academic record.

Mansur H. Jurdak Excellence Award in Mathematics: Awarded to a graduating student majoring in mathematics at the Faculty of Arts and Sciences with top academic achievement.

Mark Sawaya Endowed Award: Awarded to the graduating senior student in computer science with the highest GPA.

Mona Chemali Khalaf Endowed Award: Awarded to the undergraduate student majoring in economics who has the highest GPA in the fall term of his/her graduating year.

Mrs. Jinan Majzoub Excellence Award in English Literature: Awarded to a graduating student with the highest GPA in the graduate program in English literature.

MT2 Best Achievement Award: Awarded to the computer science student(s) who prove their achievements through an acquired and demonstrated skillset across various accomplishments in specific area(s) of computer science.

Muhanna Foundation in Mathematics Award of Excellence: Awarded annually to the most outstanding senior Lebanese student in the Department of Mathematics.

Murad al-Akl Awards: Awarded annually for the best essay, speech, or debate on a given subject by the Department of English.

Nabil Bukhaled Endowed Excellence Award in Computing: Awarded to a graduating student who has demonstrated an excellence in the field of computing. Established to honor the life and legacy Nabil Bukhaled, the Nabil Bukhaled Excellence Awards in computing will be conferred on a graduating student with very high academic achievements graduating with a degree in computer science and one in computer engineering.

Nader Prize for Excellence in Arabic Language and Literature: Awarded to a graduating student in the Department of Arabic and Near Eastern Languages who has achieved the highest academic distinction and/or creativity during her/his tenure as an undergraduate.

Nadia Cheaib Hoballah Award in Education: Awarded to a graduating female student majoring in education who has demonstrated a passion for the field of education and teaching.

Nadim Khalaf Endowed Award: Awarded to a senior economics student with the highest average.

Poet Said Fayad Graduate Prize in Literature and Humanities: Awarded to a graduate student in Arabic who participates in the Al-Abhath Essay Prize competition.

President Elias Hraoui Endowed Student Award in Economics: Awarded to an outstanding graduate economics student accepted in a PhD program and to an outstanding undergraduate student who has shown leadership and scholastic work in the Economic Student Society.

Professor Fuad I. Khuri Award in Anthropology: Awarded to an outstanding Lebanese student graduating with a master's degree in anthropology. If in a given year no graduate student in anthropology was identified to meet the stated criteria, the award will be given to a graduate student majoring in Middle Eastern studies.

Professor Mohamed Harajli Excellence Award in Humanities: Awarded to the top student in humanities.

Professor Ramzi Mounir Baalbaki Excellence Award in Arabic: Awarded to the top graduating with an undergraduate degree in Arabic or to a top graduating student with a master's degree in Arabic.

Randa Azzam Khoury Endowed Award in Education: Awarded to a graduating education teaching diploma (TD) student, with a preference to elementary education.

Randa Bdeir Award in Gender Equity: Awarded to qualified undergraduate or graduate student(s) from the Department of Sociology Anthropology and Media Studies (SOAM) or the Center for Arab and Middle Eastern Studies (CAMES) who had authored the best paper on a topic related to gender studies.

Remy Rebeiz Award in Economics: Awarded to a junior student majoring in economics who has the highest average in a specific set of economics, mathematics, and humanities courses.

Salim Ali Salam Endowed Award: Awarded to a graduate student with the best graduate thesis in Ottoman or Arab studies in the fields of history, political studies and Middle Eastern studies.

Samia Abdul Basset Siniora Endowed Award in Education: Awarded to an AUB undergraduate student completing his/her BA in education who has demonstrated a record of academic excellence, a commitment to the education pledge, promoted moral and academic excellence, tolerance, inclusivity, and innovation in education, and is on financial aid.

Samir Makdissi Award in Economics: Awarded to a graduate student in economics for the best project/thesis.

Selma Mirshak and Mohsen Slim Endowed Student Award: Awarded to a graduate student majoring in sociology who has conducted best field work research.

Shehadeh Abboud Memorial Excellence Award in English Language: Awarded to a graduating student majoring in English with the highest average in the major English courses.

Sheikh Fawzi Azar Memorial Prize: Awarded to student(s) in SBS with a commendable paper or study submitted to the department. Annual balance will be used for the purchase of educational materials and subscription to scientific journals.

Suad Sabbagh Sanioura Memorial Prize: Awarded to a graduating student majoring in economics, in a very good academic standing.

Melhem and Tamani Zein Endowed Award in Fine Arts: Awarded to an undergraduate student majoring in fine arts, with the highest major average throughout his undergraduate years of study.

Teddy Christidis Excellence Award in Physics: Awarded to an excelling student graduating with a bachelor's degree in physics who has demonstrated depth and maturity and a keen appreciation of physics.

Usama al-Khalidi Endowed Award: Awarded to an outstanding senior student majoring in biology who has demonstrated academic excellence as well as a commitment to community service and/or passion of arts.

Yvonne Stead Nasr Award for Community Impact in Education: Awarded to a female graduate student who has completed a master's thesis and who has contributed or shown significant potential for community impact.

Wadia Noureddin Endowed Award in Biology: Awarded to a graduating student who demonstrates excellence in his/her academic studies in biology, as well as a mature commitment to a career in the same or related field.

William Van Dyck Endowed Award in Biology: Awarded to the graduating senior student with the highest GPA.

Maroun Semaan Faculty of Engineering and Architecture

Abdallah Darwiche Endowed Award: Awarded to a group of students who submit the best final year project in the Department of Electrical and Computer Engineering (ECE).

Abdul Hadi Debs Endowment Award for Academic Excellence: Awarded to a graduating student who has an outstanding academic record. The award is given to one student in the Faculty of Agricultural and Food Sciences, one in the Faculty of Arts and Sciences, and one in the Maroun Semaan Faculty of Engineering and Architecture.

Aline Daoud Award: Awarded to a female student pursing a degree in engineering who has excelled or provided a contribution to the topic of supply chain management.

Cesar P. Moukarzel Award for Urban Innovation and Sustainability: Awarded to encourage participants to present projects that would enable cities in Lebanon to be more livable, welcoming, sustaining people's needs and presenting a better quality of life in the long run.

Dean's Award for Creative Achievement: Awarded to a student in each of the main programs of the Maroun Semaan Faculty of Engineering and Architecture (architecture, graphic design, civil engineering, computer and communications engineering, electrical engineering, and mechanical engineering) who has demonstrated outstanding creativity in her/his approach to academic work.

Distinguished Graduate Award: Awarded to a graduating student in each of the undergraduate engineering programs of the Maroun Semaan Faculty of Engineering and Architecture (civil engineering, computer and communications engineering, electrical engineering, mechanical engineering) in recognition of outstanding academic achievement, character, and contribution to the faculty throughout her/his tenure in the faculty.

Dr. Robert Saliba Award for Excellence in Urban Design and Research: Awarded to a student for excellence in thesis work done in the urban design graduate program or in architecture, on a topic that is on Beirut and on core to Professor Saliba's research such as modern heritage, infrastructural breaks, or reconstruction.

Farouk W. Agha Excellence Award: Awarded to a graduating student with a BE degree in mechanical or civil engineering who accumulated the highest GPA during her/his period of study at AUB.

George R. Rais Endowed Architecture Awards: They are awarded to three students in their third year of studies pursuing a degree in architecture. Selection is based on best project as determined by the Administrative Committee of the Department of Architecture. The first prize is $8,000, the second prize is $5,000, and the third prize is $3,000.

Ghazi and Maya Nourallah Endowed Innovation Award: Awarded to undergraduate student(s) in computer science or electrical and computer engineering (ECE). This award follows a contest between the two departments, where each year, one team (up to three contestants per team) will win, either from the Computer Science (CMPS) department or the ECE Department.

Hayat Salam Liebich Travel Award in Islamic Architecture: Awarded to a student in his fourth, fifth year or a graduate student of architecture, to enable research in Islamic architecture as a travel grant.

Mohamad Ali Safieddine Endowed Award for Academic Excellence: Awarded to a graduating student who is receiving financial assistance and has a high academic record, in addition to demonstrating good character as per his/her professors.

Nabil Bukhaled Endowed Excellence Award in Computing: Awarded to a graduating student who has demonstrated an excellence in the field of computing. Established to honor the life and legacy Nabil Bukhaled, the Nabil Bukhaled Excellence Awards in computing will be conferred on a graduating student with very high academic achievements graduating with a degree in computer and communication engineering.

Narine Bolghourjian Exemplary Engagement Endowed Award: Awarded to an undergraduate student in recognition of leadership, character, and contribution to the AUB life/community.

Nehme Moujaess Student Award in Landscape Architecture: Awarded to final year landscape architecture students whose final year project is selected by the department as the most deserving.

Nicolas and Faride Moujaes Student Award in Engineering: Awarded to graduating student/students who presented the most innovative final year project.

Professor George and Frida Ayoub Endowed Award: Awarded to an engineering student, graduate or undergraduate, who creatively contributes to the environmental engineering field.

Resource Group Entrepreneurship Award: Awarded to students who present the best project in cybersecurity or privacy to support the establishment of a startup.

Toters Technology Innovation Award: Awarded for a senior project in electrical and computer Engineering that demonstrates outstanding creativity, originality, and impactful application of innovative technologies. It celebrates students who push the boundaries of tech to develop innovative solutions that address real-world challenges.

Youssef M. Salam Civil Engineering Excellence Award: Awarded to a graduating student with a BE degree in civil engineering who accumulated the highest GPA during her/his period of study at AUB.

Faculty of Health Sciences

Abdelbasset Ahmad Sanioura Memorial Prize in Health Professions: A certificate and a prize will be awarded to the graduating student completing his/her undergraduate studies with the highest GPA in one of the disciplines of Health Professions at the Faculty of Health Sciences: medical audiology sciences, medical imaging sciences, or medical laboratory sciences.

Dr. Musa Najib Nimah Endowed Award for Academic Excellence: Awarded to a graduating student at the graduate level from the Faculty of Health Sciences who exhibits the “spirit” of public health and demonstrates excellent leadership skills and social involvement.

Dr. Nadim Adib Haddad Endowed Award: Awarded to a graduate student in the MPH program who has the highest GPA.

Graduate Academic Achievement Award: It is a non-cash honorary award in recognition of excellence in academic performance that is awarded to a student in the MS programs.

Integrative Learning Experience (ILE) Best Poster Award: A non-cash honorary award presented to the graduating MPH student who achieves the highest overall score in the ILE poster presentation, demonstrating outstanding synthesis and application of theory and practice, critical insight, and excellence in public health communication. The score is determined by a jury panel, and the poster presentation serves as the culmination of a year-long work on the project.

Kiram Sanioura Memorial Prize in Public Health: A certificate and prize will be awarded to the graduating student completing his/her undergraduate studies with the highest GPA in the environmental health program or health communication program at the Faculty of Health Sciences.

Lina Jazi Environmental Excellence Award: To be awarded to a graduating student who has demonstrated excellence through either a project, presentation, research, and or volunteer efforts in the area of environmental sciences in the Faculty of Health Sciences.

Raghda Kurdi Exceptional Leader Award: Awarded to a senior female student pursuing her undergraduate studies at the Faculty of Health Sciences, who has demonstrated a record of academic excellence and leadership skills, and is on financial aid.

Faculty of Medicine

Abdul Aziz and Jamileh Soueidan Excellence Endowed Award in Medicine: Awarded to a graduating student majoring in medicine with top academic achievement and demonstrated dedication to the profession.

Dr. Abdul-Latif H. Hamdan Endowed Award: Awarded to a chief resident who produced the best research paper in the field of otolaryngology and related-specialties.

Dr. Bassem Tanios Best Resident Teacher Endowed Award: Awarded to the best resident teacher.

Dr. Herbert R. Nassour Jr. Surgery Residency Award: Awarded to a medical doctor pursuing his/her residency training in general surgery.

Dr. Jamal Jawad Hoballah Surgical Residency Award: Awarded to a graduating resident in the Department of Surgery at AUBMC who demonstrates excellence in research.

Dr. M. Amin Arnaout Award in Medicine: Awarded to a student majoring in medicine graduating with high distinction or distinction and has demonstrated integrity, diligence, and dedication to the academic profession.

Dr. Majid-Uddin Kazi Excellence Award in Medicine: Awarded to graduating student majoring in medicine with top academic achievement and demonstrated dedication to the profession.

Dr. Ralph Said Papas Endowed Award: Awarded to a resident or fellow in OBS/GYN who has been in very active, impactful, and demonstrated productive research as a first priority. As a second priority for a resident or fellow who exhibits excellence in teaching.

Dr. Roland Jamil Tannous Endowed Award: Awarded to a resident or fellow in OB/GYN who exhibits consistent compassionate care towards patients.

Franklin Thomas Moore — Ethel Jessup Memorial Prize: Established by the children and friends of Dr. and Mrs. Franklin T. Moore; awarded to the senior medical student who has shown the highest proficiency in obstetrics and gynecology or, lacking such, in any department, and in the student's personal life a dedication to humanity, a zeal for truth, and a belief in God.

Hatem and Fuadi Moukaddem Award in Medicine: Awarded to a graduating student majoring in medicine with top academic achievement and demonstrated dedication to the profession.

Henry and Amelia Nasrallah Endowed Teaching Award: Awarded to a resident or fellow in the Department of Psychiatry who exhibits a track record of excellent teaching and mentoring skills.

Nimr Tuqan Memorial Prize in Pathology: It is in memory of the late Dr. Nimr Tuqan and is to be awarded to the student of Medicine II who excels in her/his work in the Department of Pathology.

Professor Ibrahim Salti Award: Awarded to the best project by an endocrine fellow.

Rafic Hariri School of Nursing

Florence Nightingale Award: Awarded to an undergraduate senior student who meets the following criteria: academic achievement, professional integrity, and contribution to professional and university life.

Janet Jeries Haddadin Nursing Award: Awarded to an undergraduate student with the highest GPA.

Rouzan Al-Najjar Memorial Award in Nursing: Awarded to three Arab students, one in each year of the nursing program, who are the most academically qualified.

Salma Mansur Jurdak Excellence Award in Nursing: Awarded to a graduating student majoring in nursing at the Rafic Hariri School of Nursing with top academic achievement and demonstrated dedication to the profession.

Siham Rida Ali Endowed Nursing Award: Awarded to a top graduating senior student from the Rafic Hariri School of Nursing (HSON), who demonstrates excellence and high impact in a community project or engagement.

Women's Auxiliary Awards: Awarded to senior students who meet the following criteria: academic achievement, professional integrity and seriousness of purpose, contribution to professional and university life, and a willingness to join AUBMC after graduation.

Suliman S. Olayan School of Business

Aida Sanioura Memorial Prize in Business: Awarded to a top graduate senior from the Suliman S. Olayan School of Business.

Ali Abdelbasset Sanioura Memorial Prize: Awarded to a senior graduating student studying business administration, in good academic standing with team spirit commitment.

Arab Finance Corporation Excellence Award in Portfolio Management: Awarded to the best graduate student in portfolio management in the IMP program.

Dr. Emile Ghattas Memorial Award: Awarded to the best graduating student in the bachelor of business administration program.

Gravitas Consultants' HRM Leadership Award: This award is in recognition of leadership in the field of HRM through active engagement in promoting a positive perception of HR.

Imad and Annelie Baalbaki Award in Marketing: Conferred on a graduating student in business administration with track concentration in marketing and who demonstrates excellence in his/her academic studies.

John and Mary Saba Excellence Award in Accounting: awarded to a graduating student majoring in business administration with track concentration in accounting and with the highest academic achievement.

Mahmoud and Deeba Achour Endowed Award: The award is intended for graduate students and preferably MFIN students in recognition of academic merit and excellence of character.

Mohamad Ali Safieddine Endowed Award for Entrepreneurship: Awarded to a graduating student who is receiving financial assistance and who demonstrates a strong potential or path towards entrepreneurship and business ownership.

Nada T. Kobeissi Endowed Excellence Award in Management: Awarded to the top graduating student majoring in management at AUB's Suliman S. Olayan School of Business. The student should be recipient of financial assistance from the university, and should have the highest GPA as she/he graduates majoring in management.

Quantum Communications Award in Business: Awarded to one or more graduating students in business with the highest academic achievements.

Randa Bdeir Prize for Entrepreneurial Spirit and Practice: Awarded to a female student who has demonstrated distinctive and sustained entrepreneurial spirit and practice during the course of the DSA competition.

Roosevelt and Georgette Fattouh Excellence Award in Business: Awarded to a graduating student majoring in business with top academic achievement.

Sami Kteily Excellence Award for Graduate Students: Awarded to a graduating graduate student with top academic achievement.

Samiha Tannir Student Sustainability Endowed Award: Awarded to a graduating student who has demonstrated exceptional commitment and contributions to sustainability initiatives within our community.

Endowed Research Funds

- Dar Al-Handasah (Shair and Partners) Endowed Fund for Research in Engineering
- Dr. Abdul-Latif H. Hamdan Endowed Otolaryngology Research Award
- Dr. Robert Saliba Award for Excellence in Urban Design and Research
- Farouk K. Jabre Fund for Biomedical Research
- The Hani Salaam Research Fund (CAMES)
- Henry and Amelia Nasrallah Endowed Research Award
- The Joseph and Ilham Cicippio Endowed Research Fund at FAFS
- Kamal A. Shair Central Research Science Laboratory
- Khaled and Rayya Daouk Research Fund at FAS
- E.Terry Prontho Fund for Research in Psychology at FAS
- A. Karim and Soraya El Cheikh FAS Research Fund
- FAS Endowed research fund ERFASR
- Khaled Y. Daouk Research Fund
- Mikati Endowed Research Fund (CSR)
- Professor Fawwaz Ulaby MSFEA Endowed Research Fund
- Rockefeller Foundation Graduate Education and Research at FAS
- Salim A. Salam Endowed Fund
- Suad Joseph Endowment for Palestinian Studies Award
- Suheil Jamil Muasher Endowed Medical Student Research Award

Faculty List

Deans Emeriti

- Bitar, Khalil; PhD, Yale University; Emeritus Dean; Faculty of Arts and Sciences - Dean's Office
- Cortas, Nadim; MD, American University of Beirut; Emeritus Dean; Pharmacology and Toxicology
- Daghir, Nuhad; PhD, Iowa State University; Emeritus Dean; Faculty of Agricultural and Food Sciences - Dean's Office

Professors Emeriti

- Ayoub, George M.; PhD, Imperial College London; Emeritus Professor; Maroun Semaan Faculty of Engineering and Architecture - Dean's Office
- Bashour, Munir; PhD, University of Chicago; Emeritus Professor; Education
- Berbari, Adel; MD, American University of Beirut; Emeritus Professor; Internal Medicine
- Bikhazi, Anwar; PhD, University of Michigan - Dearborn; Emeritus Professor; Anatomy, Cell Biology, and Physiology
- Crow, Ralph; PhD, University of Michigan - Dearborn; Emeritus Professor; Faculty of Arts and Sciences - Dean's Office
- Dajani, Nabil; PhD, University of Iowa; Emeritus Professor; Sociology, Anthropology and Media Studies
- Issa, Philip J.; MD, Faculté Française De Médecine; Emeritus Professor; Medical Dean's Office
- Jurdak, Murad; PhD, University of Wisconsin-Madison; Emeritus Professor; Education
- Kawar, Nasri; PhD, Pennsylvania State University; Emeritus Professor
- Kazarian, Shahe; PhD, University of Western Ontario; Emeritus Professor; Psychology
- Khairallah, Assaad; PhD, Princeton University; Emeritus Professor; Faculty of Arts and Sciences - Dean's Office
- Khalaf, Samir; PhD, Princeton University; Emeritus Professor; Faculty of Arts and Sciences - Dean's Office
- Khalidi, Tarif; PhD, University of Chicago; Emeritus Professor; Faculty of Arts and Sciences - Dean's Office
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- Makdisi, Samir; PhD, Columbia University; Emeritus Professor
- Mavromatis, Harry A.; PhD, Princeton University; Emeritus Professor; Physics
- Muallem, Musa; MD, American University of Beirut; Emeritus Professor; Medical Dean's Office
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- Simaan, Joseph; MD, American University of Beirut; Emeritus Professor; Medical Dean's Office
- Zurayk, Huda; PhD, Johns Hopkins University; Emeritus Professor; Epidemiology and Population Health

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- Abboud, Jacques; PhD; Lecturer; Industrial Engineering and Management
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