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ACADEMIC CALENDAR 2008–2009

SEPTEMBER 2008
Thursday 18 – Friday 19
Friday 19 – Wed 24
Saturday 20
Monday 22
Wednesday 24
Thursday 25
Thursday 25 – Tuesday 30

OCTOBER 2008
Wednesday 1 – Thurs 2*
Monday 6 – Thurs 9
Friday 10
Wednesday 15

NOVEMBER 2008
Friday 21
Saturday 22
Monday 24

DECEMBER 2008
Monday 8 – Tuesday 9*
Wednesday 24
Monday 29*

JANUARY 2009
Thursday 1
Tuesday 6
Wednesday 7*
Thursday 8
Tuesday 15
Monday 19 – Wed 21
Wednesday 21
Thursday 22 – Wed 28
Wednesday 28
Thursday 29 – Sun, Feb. 1

* Tentative dates
FEBRUARY 2009

Monday 2 – Thurs 12
Final Exams Period
Monday 9
St. Maroun’s Holiday
Friday 13
Deadline for applying to the Medical School
Monday 16 – Tuesday 17
Orientation Program for new students
Tuesday 17 – Friday 20
Advising Period
Friday 20
Registration for new students for the Spring 2009.
Monday 23
Registration for returnee students who reactivated their files Spring 2009.
Monday 23 – Thurs 26
Spring 2009 classes begin.
Friday 27 – Thurs 5
Late Registration with late fees, and Drop and Add Period for the Spring 2009.

MARCH 2009

Saturday 7
Deadline for the payment of the Tuition Fees for the Spring 2009.
Monday 9*
Prophet’s Birthday Holiday
Thursday 12
Deletion List
Tuesday 31
Deadline for submitting the Summer, and the Fall 2009 Course Offerings

APRIL 2009

Friday 10
Western Easter Vacation begins (8:00 a.m.)
Tuesday 14
Western Easter Vacation ends (8:00 a.m. – Classes resume)
Friday 17
Eastern Easter Vacation begins (8:00 a.m.)
Tuesday 21
Eastern Easter Vacation ends (8:00 a.m.)
Wednesday 22
Deadline for the Incomplete Grades from the Fall 2009

MAY 2009

Friday 1
Labor Day Holiday
Monday 25
Deadline for intercampus transfer for Module I, Summer 2009

APRIL 2009

Monday 25 – Friday 29
Advising Period
Wed. 27 – Thurs, June 4
Payment of the Deposit Period, for the Fall 2009

JUNE 2009

Monday 1 – Wed 3
Registration for current students for Module I, Summer 2009
Thursday 4 – Friday 5
Registration for current students for Module II, Summer 2009
Friday 5
Last day for withdrawal from courses for the Spring 2009
Monday 8 – Friday 12
Registration for current students for the Fall 2009
Friday 12
Spring 2009 classes end
Saturday 13 – Monday 15
Reading Period

SEPTMBER 2009

Tuesday 1
Start of classes for the Medical Students
Monday 14
Last day for withdrawal from courses for Module II, Summer 2009
Wednesday 16
Module II, Summer 2009 classes end
Thursday 17
Reading Day
Friday 18 – Saturday 19
Final Exams Period

JULY 2009

Tuesday 16 – Thurs 25
Final Exams Period
Friday 26
Orientation Program for new students
Monday 29 – Tuesday 30
Advising Period
Monday 29 – Wed July 1
Registration for new students for Module I, Summer 2009

AUGUST 2009

Friday 2
Last day for withdrawal from courses for Module I, Summer 2009.
Wednesday 5
Module I, Summer 2009 classes begin
Thursday 6
Late Registration with late fees, and Drop and Add Period for Module I, Summer 2009.
Monday 6 – Wed 8
Saturday 11
Deadline for the payment of the Tuition Fees for Module I, Summer 2009.
Wednesday 15
Deletion List
Thursday 16
Commencement Exercises – Byblos Campus
Saturday 18
Commencement Exercises – Beirut Campus

SEPTEMBER 2009

Tuesday 1
Start of classes for the Medical Students
Monday 14
Last day for withdrawal from courses for Module II, Summer 2009
Wednesday 16
Module II, Summer 2009 classes end
Thursday 17
Reading Day
Friday 18 – Saturday 19
Final Exams Period

* Tentative dates
The University’s early days, in 1835, find a reminder in an engraved stone in Beirut’s city center: “Site of the first edifice built as a school for girls in the Turkish Empire.” The engraving refers to the American School for Girls, established in Beirut, by American Presbyterian missionaries.

Then, in 1924, a two-year program was added to the high school, providing a junior college curriculum. In 1927, the American Junior College for Women (AJCW) became a separate institution and was transferred to Ras Beirut. Six years later, it moved to its present location.

In 1948-49, the AJCW program was expanded into a university-level institution, under the name of Beirut College for Women (BCW). During that academic year, it was granted a Provisional Charter by the Board of Regents of the University of the State of New York, and authorized to bestow the Associate in Arts (A.A.), and Associate in Applied Sciences (A.A.S.) degree for a two-year course.

In 1955, the Board of Regents granted the College an Absolute Charter, with all its rights and privileges, including the authority to hand out Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Associate in Arts (A.A.), and Associate in Applied Science (A.A.S.) degrees. As a recognized university-level liberal arts college, it played a key role in serving the educational, social, and economic needs of the Middle East.

In 1970, another milestone was reached when the Lebanese Government officially recognized BCW’s B.A. and B.S. Degrees as equivalent to the National Licence. Having accepted men into some A.A. programs, the College, in 1973, changed its name to Beirut University College (BUC). The following academic year, five B.A./B.S. majors were opened to male students, and, in October 1975, men were admitted into all the programs. In 1978, BUC opened an off-campus program in the North, and, a year later, another one was operational in the South.

Adding to the College’s constantly evolving programs, in 1985, the Board of Regents amended the Charter to include two branches. In 1987, based on the amended Charter, BUC opened its northern branch, on the outskirts of the historical port of Byblos, in rented buildings in Amsheet. In October 1991, classes started in the newly built campus at Blat overlooking Byblos. It was officially inaugurated on July 16, 1992.

According to a Board of Trustees’ decision, BUC became a University in October 1992. In 1994, the Board of Regents in New York approved BUC’s request to change its name to the Lebanese American University (LAU), reflecting further growth, and the addition of several professional schools. In the Fall 2007 semester, more than 6,700 students were enrolled at LAU, at its two campuses.
OVERVIEW

The Board of International Advisors shall act as Advisors to the BOARD, and the Executive Committee of the BOARD, on Policies of the University. The Board of International Advisors serves an important and integral function in the life of the University. The Board of International Advisors will be comprised of individuals of distinction who will bring their considerable talents, experience, and wisdom, to assist in furthering the Mission of the University.

The Board of International Advisors is charged with enhancing the visibility and reputation of the University. It shall serve as a critical resource, and will provide, in an advisory capacity, input and guidance to the BOARD, the President, and senior management, on matters relating, but not confined to:

1. Academic Programming, particularly cross-border and jointly sponsored academic programs;
2. Development, particularly the identification of new sources of giving;
3. Alumni Relations;
4. Community Relations; and
5. Recruitment.

General Duties

The BOARD shall be responsible for seeing that the purpose of the University is met organizationally, administratively, educationally, spiritually, socially, and financially. The Board is also responsible for making sure that adequate facilities are provided, and that a policy framework is established, within which the program of the University can be developed, and administered by the staff. The BOARD shall have the following prime functions:

1. Leadership—the BOARD shall utilize its unique position:
   a. To select, support, or remove, the President of the University;
   b. To ensure that an adequate statement of mission and purpose is established;
   c. To assure that an adequate long range plan for the University is developed, and
   d. To assume personal responsibility for assisting in the fund-raising activities of the University, through personal giving, through developing contacts with other donors, and through a willingness to persuade others to become donors.

2. Stewardship—the BOARD shall oversee the performance of the management of the University:
   a. To ensure that the institution utilizes the resources at its disposal to further its mission and purpose; and
   b. To ensure that assets are managed effectively, and there are adequate safeguards to protect the future of the University.

3. Audit—the BOARD shall serve in an evaluation capacity in applying external standards to the performance of the Institution:
   a. To judge the academic standards of the faculty, against the standards for the type of institution to which they belong, utilizing outside specialists as necessary;
   b. To evaluate the financial health of the institution, through the traditional annual audit, and through comparative data from other institutions; and
   c. To devise means of assessing the management performance of the administrative staff, utilizing outside consultants, when necessary, or by redefining the annual audit to include management auditing.

BOARD OF INTERNATIONAL ADVISORS

Dr. Paul F Boulos  
Chairman of the Board of International Advisors
Dr. Nadim Daouk  
Vice Chairman of the Board of International Advisors
Mrs. Youmna Salame  
Secretary of the Board of International Advisors
Mr. Mike Ahmar
Dr. Raymond Audi
Dr. Francois Bassil
Mr. Zuhair Boulos
Mr. Nicolas Chammas
Mrs. Leila Saleeby Dagher
Mr. George Doumet
Mr. Raphael Debbane
Mrs. Eva Kotite Farha
Mr. Enan Galaly
Dr. Boutros Boutros Ghali
Mr. Kanan Hamzeh
Mrs. Maha Kaddoura
Dr. Najib Khatib
Sheikh Fouad El Khazen
Rev. George Mourad
Mr. Charles Muller
Mr. Omar Sawaf
Dr. H. John Shammas
Mr. Philip Stoltzfus

Ex-Officio Members

Rev. Joseph Kassab,  
General Secretary of the National Evangelical Synod of Syria & Lebanon
Joseph G. Jabbara, Ph.D.  
President, Lebanese American University
Chair of the Faculty Senate
**LAU MISSION, VALUES, AND VISION**

**LAU MISSION**

The Lebanese American University is committed to academic excellence, student centeredness, the advancement of scholarship, the education of the whole person, and the formation of students as future leaders in a diverse world.

**LAU VALUES**

In both planning for its future as well as conducting its ongoing daily activities, the Lebanese American University seeks to act in a manner that is guided by a deep-rooted sense of shared ethical values and aspirations.

Built upon this foundation, LAU:

- Draws its fundamental inspiration from the devotion of its Presbyterian Founders to always seek the truth, respect human dignity, promote gender equality, and be inclusive;
- Provides educational opportunities as one university with multiple campuses, each with distinctive gifts and attributes;
- Commits to academic and service excellence throughout the institution;
- Demonstrates dignity and respect for, and from, the Board, faculty, staff, and students, in word, and in deed;
- Celebrates the accomplishments, and contributions, of all the members of the LAU community;
- Succeeds because its people take pride of ownership, and are held accountable for their actions;
- Works together as an extended family community that reflects the highest ethical and moral standards;
- Enables individuals to find their own spiritual, and personal, fulfillment, while ever sensitive to the changing global village in which they live;
- Promotes social connectedness of the students to the country of Lebanon, and encourages their commitment to social justice and democracy.

**LAU VISION**

The Vision of the Lebanese American University is driven by its Mission and Values.

The Vision for LAU will be carried out through:

- Providing access to a superior education for diverse undergraduate, and graduate, students, and lifelong learners;
- Attracting, and retaining, distinguished faculty who excel in teaching, research, and community service;
- Enrolling, and retaining, academically qualified and diverse students;
- Embracing liberal arts in all curricula;
- Creating opportunities for rigorous research and the dissemination of knowledge;
- Developing a close-knit community that excels academically, is intellectually stimulating, and is religiously, ethnically, and socio-economically diverse;
- Attracting, and retaining, a highly qualified staff committed to excellence in service;
- Fostering collaboration across the University in teaching, learning, research, and service;
- Providing a state-of-the-art infrastructure, and support services, that will enrich the student, faculty, and staff, experience;
- Developing world citizens with a deep sense of civic engagement;
- Promoting the values of peace, democracy, and justice.

**ACADEMIC AFFAIRS POLICY**

The Academic Affairs Policy finds its inspiration in the Mission, Values, and Vision of the University, and in its commitment to academic excellence. The University is dedicated to upholding, and preserving, the principles of academic freedom. These precepts reflect the University’s fundamental mission, which is to acquire and disseminate knowledge; foster independent thinking and expression, while respecting the freedom of others; protect freedom of inquiry, research, teaching, and publication; and promote critical thinking and independent problem solving. These freedoms enable the University to advance learning, and to transmit it effectively to its students, and to the public. The academic mission is also fulfilled by other policies that govern the quality of life, and conduct in the University.

The Lebanese American University operates as one institution with multiple campuses, each with distinctive gifts and attributes:

- Providing access to a superior education for diverse undergraduate and graduate students and lifelong learners;
- Attracting and retaining distinguished faculty who excel in teaching, research and community service;
- Enrolling and retaining academically qualified and diverse students;
- Fostering in its students a mature independence of mind, honesty, and integrity; in academic, professional, and personal affairs, and leadership qualities, as well as awareness of the responsibility to others, and a celebration of diversity;
- Embracing liberal arts in all curricula;
- Fostering independent thinking and expression, while respecting the freedom of others;
- Providing an environment where faculty and students are able to express the widest range of viewpoints, in accordance with the standards of scholarly inquiry, mature discourse, civic and social responsibility, professional ethics, and a culture of peace;
- Creating opportunities for rigorous research and the dissemination of knowledge;
- Fostering collaboration across the University in teaching, learning, research, and service.

The official language of instruction is English.
ACADEMIC AFFAIRS POLICY

A. EDUCATIONAL STANDARDS

1. Academic Rules and Procedures
The Academic Rules and Procedures shall be developed, reviewed, and updated, by the Faculty, through the appropriate faculty body, and the University process, when applicable. These Rules and Procedures shall be readily available to students, faculty, and staff, and shall be published, as appropriate, in full, or in condensed form, in the University Catalog, Student Manual, Faculty Manual, and on the University Web-site.

2. Graduation Requirements
Requirements for graduation with a Master’s Degree, Bachelor’s Degree, or an Associate’s Degree shall be in accordance with the requirements established by the Board of Regents of the University of the State of New York, and the Lebanese Government, when applicable. These requirements are covered in an attachment to this Policy.

3. Faculty Evaluation
Faculty Evaluation procedures shall be established to evaluate the teaching competence, research, and service of faculty members, as stipulated by the Personnel Policy Faculty section.

4. Program Evaluation
Program Evaluation procedures shall be established by the Board of Trustees, through its Academic Affairs Committee, to audit the academic standards of the University. A systematic testing program of incoming sophomores, and graduating seniors, shall be routinely utilized to judge the teaching effectiveness of the faculty, and the learning efficiency of the students, against the standards of other comparable institutions in Lebanon, and in other countries. Graduate students enrolled in the Master of Business Administration (MBA) Program are required to take the Graduate Management Admission Test (GMAT) exam.

B. ACADEMIC SERVICE

1. Academic Records
Academic Records shall be maintained to collect key academic information that is needed to judge the academic standards of the institution, utilizing the commonly accepted approaches in higher education.

2. Resources
Resources shall be made available to support, adequately, the academic offerings of the University.

3. Learning Laboratory
Learning Laboratory facilities shall be established to augment the traditional classroom teaching methods, and to utilize the latest educational technological aids to teaching.

C. FACULTY DUTIES

In accordance with the University By-laws, the Faculty shall be responsible to the Board of Trustees through the Deans, the Vice President for Academic Affairs, and the President, for the academic standards and programs of the University. They shall take the steps necessary to assure quality standards that are in accordance with accepted international standards. The Faculty shall assume responsibility for keeping itself abreast of the latest educational developments throughout the world, and shall develop innovative teaching, and learning, programs designed to provide the students with the best educational experience possible, and to contribute to the educational leadership in the Middle East.

To carry out these duties, each full time Faculty member shall enter into a contract with the University, in accordance with its Personnel Policy.

ACADEMIC AFFAIRS POLICY

D. ACADEMIC CALENDAR

1. Basis of Calendar
In accordance with the regulations of the Board of Regents of the University of the State of New York, under which LAU is chartered, the minimum requirements for each academic year shall be 30 weeks of actual classroom work, or 32 weeks including examinations. Normally, Fall and Spring terms will total about 33 weeks of classes and examinations, in order to ensure the minimum requirements, and to allow for the uncertainties of the holidays, and extra holidays, that may be proclaimed. Faculty duty shall be for a 36-week period, as spelled out in the Personnel Policy.

In addition to the regular terms, the University calendar shall include Summer sessions of five or more weeks of actual classroom, with prorated contact hours.

For lecture courses, each credit hour will consist of one period of fifty minutes, per week, in a regular term, and a prorated duration in the Summer sessions. Laboratory, studio, clinical, and shop, courses will have up to three contact hours, per credit, depending on the type of activity.

2. Academic Holidays
The calendar shall be constructed in such a way that classes will not be held on the holidays considered official by the Government of Lebanon for the private sector.

3. Make-up days missed
All class days missed, for any reason, excluding official holidays, shall be made up pursuant to the following:

a. Material lost as a result of suspension of classes must be made up.

b. The way such material is to be made up is left up to the discretion of the teacher, provided the period of the suspension of classes does not exceed three teaching days per semester.

c. The Faculty member is responsible to inform the Division/Department Chair who, in turn, shall forward the information to the Dean.

d. If the time lost per semester exceeds three teaching days, the University Planning Council shall decide on the time, and the means, of make-up, such as the extension of semester, Saturday classes, and the reduction of holidays. Such a decision shall be made after consultation with the Faculty and the Student Cabinet. When the lost days in a semester reach 10, the semester should be extended, to avoid loss of credits, and make-up shall be arranged.

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ACADEMIC PROGRAM

The Lebanese American University is a dynamic and innovative multi-campus University, engaged in higher education in a constantly changing world. To maintain a curriculum attuned to the needs of the Middle East, and the modern world, the University’s Administration feels obligated to swiftly implement any changes promoting greater effectiveness in the academic program. The University, therefore, reserves the right to change any aspect of its Program, or Policies and Procedures, described in this catalog, to carry out its educational goals effectively.

LAU is dedicated to the search for truth, through a curriculum providing a variety of intellectual experiences, and a stimulating academic community responsive to the Region’s educational and social needs.

All students must complete a general educational curriculum (see "General University Requirements") in the liberal arts, aimed at introducing them to interrelationships among several disciplines. These courses help students gain a broader understanding of humanity through the social sciences, fine arts, humanities, natural sciences, and languages.

The areas of concentration are detailed in the section entitled “Major Fields of Study.” Students wishing to pursue an individualized course of study may design programs, in consultation with their faculty advisors. The programs will be recorded at the Registrar’s Office as part of their graduation requirements.

Most students have a required Internship Program linked to their major field of study, or to their interdisciplinary studies, enabling them to relate their courses to actual experiences in their chosen fields. Moreover, students are required to take a Senior Study course involving a research paper, or project.

To stimulate students to be adventurous in their quest for knowledge, academic regulations allow them to take one elective a semester for a credit, or no-credit, grade. A passed credit grade counts towards graduation, but does not confer points for a student’s Grade Point Average.

MAJOR FIELDS OF STUDY

The Lebanese American University offers several major fields of study, in addition to area programs, or individualized interdisciplinary study programs, leading to the following Degrees:

SCHOOL OF ARTS AND SCIENCES

Associate Degrees
- Associate in Arts (A.A.) in Liberal Arts

Bachelor’s Degrees
- Bachelor of Science (B.S.) in: Biology, Chemistry, Computer Science, Graphic Design, Mathematics Education, Science Education.

Master’s Degrees
- Master of Arts (M.A.) in: Comparative Literature, Education, International Affairs.
- Master of Science (M.S.) in: Computer Science, Molecular Biology

SCHOOL OF BUSINESS

Associate Degrees
- Associate in Applied Science (A.A.S.) in Business Management.

Bachelor’s Degrees
- Bachelor of Science (B.S.) in: Business Studies, Economics, Hospitality & Tourism Management

Master’s Degrees
- Master of Business Administration (M.B.A.)
- Executive Master of Business Administration (E.M.B.A.)

SCHOOL OF ENGINEERING AND ARCHITECTURE

Associate Degree
- Associate in Applied Science (A.A.S.) in Interior Design

Bachelor’s Degrees
- Bachelor of Architecture (B.Arch.)
- Bachelor of Arts (B.A.) in Interior Architecture
- Bachelor of Engineering (B.E.) in: Civil, Computer, Electrical, Industrial, Mechanical.
- Bachelor of Science (B.S.) in Interior Design

Master’s Degrees
- Master of Science (M.S.) in: Civil and Environmental Engineering, Computer Engineering, Industrial Engineering and Engineering Management.

SCHOOL OF PHARMACY

Bachelor’s Degree
- Bachelor of Science (B.S.) in Pharmacy

Doctorate Degree
- Doctor of Pharmacy (Pharm.D.)

SCHOOL OF MEDICINE

Doctorate Degree
- Doctor of Medicine (M.D.)

SPECIAL PROGRAMS

- Excelsior College Degree, Certificate Programs, and Diplomas.
- Language Skills Programs
  - Intensive English and Special Arabic.
SUPPORTING FACILITIES AND PROGRAMS

ACADEMIC COMPUTER CENTER

The Academic Computer Center operates a variety of computer related services, in addition to sophisticated, state-of-the-art computing facilities, aimed at providing students, and faculty members, with a great academic experience.

With over 130 workstations, undergraduate and graduate students are able to gain access to a variety of operating systems such as Linux distributions, BSD, Windows OS, and Sun Solaris. Students are also well exposed to software under different operating system platforms. Software varies from desktop applications to research oriented ones. Internet and electronic facilities are available on all the computer stations to serve students, faculty, and staff.

The Academic Computer Center is managed by a series of high performance scalable IBM Blade Servers. The Blade Servers provide students with user accounts, development tools, database services, and a wide spectrum of applications that create a unique pool of cutting edge development environments.

A Research Laboratory was inaugurated to serve the University’s Graduate Programs 24 hours a day, seven days a week, with Sun workstations, and a 20-node Beowulf Cluster (used for research and development), a multimedia lab, and a Silicon Graphics Indigo workstation.

With an ever changing technological world, the need for constant improvements, and upgrades, is at the top of the Center’s priorities. Future additions include a 32-node Beowulf Cluster aimed at high performance computing, in addition to a future set of HPC, computer, network, and service-related improvements.

BUSINESS COMPUTER CENTER

The Business Computer Center, located in the Business School Building, contains 100 Personal Computers, distributed as follows:
- 21 HP Vectra Pentium IV
- 1 HP Vectra Pentium IV supervisor workstation
- 1 IBM Server
- 20 IBM Pentium IV

This Center is used by the Business School students to develop skills on professional business software applications. This is achieved through computer assignments given to students in various courses in the fields of accounting, finance, statistics, economics, research, management, management information systems, etc.

GRAPHIC DESIGN COMPUTER LABS

The three Graphic Design Computer Labs are Apple Macintosh environments equipped as follows:
- Nicol 309: 20 Power Mac G5 computers, two Power Mac G4 computers, two laser printers, and one projector.
- Nicol 529: 14 eMac computers, two Power Mac G4 computers, an A3 scanner, and two A4 scanners.
- Nicol 223: 15 Power Mac G4 computers, two printers, and an A0 plotter.

The Graphic Design Computer Labs are equipped to support the Graphic Design Program, which features intensive instruction in electronic media design, both print and animation. The Labs are used for classes, and are also open for free practice or assignments outside of class hours.

NEWSROOM

At the LAU Newsroom in Nicol Hall, journalism students sharpen their writing, editing, and layout skills, in a fully computerized setting. Totally renovated in 2006, the facility is used for classes and for free practice outside of class hours. The Newsroom is equipped with 22 iMacs, an A3/A4 HP laser color printer, an MM projector, a DVD/TV player, and the software required for the production, and design, of print or online publications. All the computers are equipped with the appropriate IT and Internet connections, and direct access to Reuters wire services.

BYBLOS

In Byblos, computing facilities are distributed in five locations across the campus. Most of the workstations feature multiple operating systems, allowing students to work on the latest Microsoft OS or UNIX/Linux-based counterpart. In addition, Macintosh machines are available for Graphic Design students. Students get to choose a campus-wide username, and password, allowing them to login on any workstation in any computer lab. Computers can be found in the following places:

1. A General Computer Center, with 60 PCs in the General Area, and a Computer Science and Engineering Room, with 15 PCs and eight nodes cluster for High Computing projects.
2. A computerized classroom with 31 PCs, and projection facilities.
3. An Architecture Computer Laboratory with 25 PCs, network plotters, and projection facilities.
4. A Mac Design lab with 25 Mac stations, and projection facilities.
5. Several Engineering Labs, with 145 computers.

All labs are equipped with network printers, scanners, and storage devices (CD writers, Zip Drives). Servers are also campus-wide and distributed as follows:
- 6 domain controllers
- 2 printing and anti-virus servers
- 4 file servers
- 3 application servers
- 2 database servers

Software applications’ installations vary from office applications, to task-oriented engineering or architecture tools, in addition to specialized applications related to courses requirements such as Java, Net, C#, Oracle, J++, Forte, Architectural Desktop, 3D Studio, Arcview, Robot, Ideas, Mathematica, Primavera, MS Project, Visio, Photoshop and Illustrator, MatLab, SAS, etc.

Also, unlimited broadband internet access is provided in all computing facilities throughout the campus. These labs open weekdays from 8 a.m. to 9 p.m., and Saturdays from 10 a.m. to 6 p.m. Extended working hours are also customary during exam periods.
SUPPORTING FACILITIES AND PROGRAMS

BIOLOGY AND CHEMISTRY LABS
The Biology Laboratories are modern, and up to date. These labs, which are utilized for the Undergraduate and Graduate teaching and research, are equipped with sophisticated instrumentation supporting all the disciplines of biology, with emphasis on the field of contemporary molecular biology. The main equipment includes pulse-field gel electrophoresis, a nucleic acid (DNA) sequencer, research fluorescent inverted microscopes, ultra-centrifuges, microbial/identification systems (Biolog, FTIR), diverse advanced incubators including CO2 incubators, different types of electrophoresis set-ups, UV-Visible spectrophotometers, Membrane Fermentor and Cell culture bioreactors, assorted water, air, and soil pollution analyzing systems, cold room and deep freeze facilities (80° C), a hybridization oven and thermal cyclers, Real time PCR sys-
tem, autoclaves, teaching microscopes, as well as assorted field equipment for environmental studies. The Labs, which serve Biology Majors as well as Pharmacy students, are fully equipped with audio-visual systems, including video-microscopy, for con-
tinuous demonstration and experimental purposes. Annexed to the Biology labs are storage facilities, as well as an industrial microbiology fermentation equipment, as well as a 5,000-liter capacity, fully automated, reac-
tor for treatment of industrial liquid wastes.

The Chemistry Laboratories are adequately equipped with state-of-the-art instrumentation for teaching practical courses to Chemistry Majors, as well as giving service courses to Biology and Pharmacy students. The major instruments include an advanced system for teaching and research such as FTIR, FT 300 Mhz NMR, UV-Visible spectropho-
tometer, fluorometers, GC-Mass spectrometer, HPLC units, GC analyzers, Nitrogen liquifiers, freeze dry-
ing setups, and others.

ENGINEERING AND ARCHITECTURE LABS AND SHOPS
The School of Engineering and Architecture is committed to providing hands-on measurements, and experimentation, as a viable component of the educational program. In this regard, the instruc-
tional laboratories are continuously receiving consi-
derable attention. In addition to providing specific instructional functions, all engineering laboratories provide a common set of computing services which include a unified username/password, giving stu-
dents access to a private and secure account where they can work on their various projects and assign-
ments, as well as browse the internet using LAU’s broadband connection. In addition, all labs are equipped with fast network printers to accommo-
date the students’ requirements.

The Architecture and Design Shop provides sup-
port to the Architecture and Design Programs. The facilities are composed of the Woodshop and the Metal Shop, as well as the Model-Making Laser Cutter Shop. The location of the Shops in the Architecture building, and their proximity to the studios, ensures that students execute all their projects at School, and that they benefit from the convenience, and support, of these facilities in real-
izing their work.

Orientation sessions on the operation and safety rules are required, before allowing students to use the Shop.

CIVIL ENGINEERING LABORATORIES
The Department of Civil Engineering at the School of Engineering and Architecture is commit-
ted to providing hands on measurements, and experimentation, as a viable component of the edu-
cational program. The Civil Engineering Laboratories provide Undergraduate students with the state-of-
the-art equipment for experimentation and demon-
stration of the basic concepts covered in class. The Laboratories also serve for research purposes for the Faculty and for the students’ final year projects. The Civil Engineering Laboratories play a leading role in serving as testing facilities, and technical consulta-
tion, for several engineering firms, and private enti-
ties, following the internationally accepted standards and testing procedures. The Civil Engineering Laboratories house the following sub-specialty laboratories:

The Construction Materials Laboratory is equipped with a 400-ton Forney Hydraulic Testing Rig, a high precision, displacement controlled, Instron Testing Frame, equipment for standard test-
ing of aggregates and concrete, in both fresh and hardened stages, equipment for non-destructive testing of different elements of existing structures, such as ultrasonic device, Schmidt Hammer, Windsor Probe, Rebar Scan, and Core Drills. Most standard tests can be performed on almost all the building and construction materials, including concrete, aggregates, asphalt, various metals, and related constituents.

The Environmental and Water Quality Laboratory is equipped with sampling devices and quality analysis of water/wastewater, jar tests, stream gauging, top of the line point and depth sediment samplers, bed load samplers, fluorometers, UV-visible spectrophotometers, colorimeters, peri-
static pumps, gas meters, centrifuges, incubators, and furnaces, in addition to mobile environmental monitoring stations for air pollution field measure-
ments. This Laboratory has a full range of standard equipment for performing routine environmental analyses of unit processes and operations in water and wastewater treatment, water quality parame-
ters, investigations in fresh and marine water qual-
ity, solid waste characterization and properties, evaluation of treatment processes, digestion and co-digestion, reactor performance, solid waste management, environmental impact monitoring, and environmental site investigations.

The GPS/GIS and Surveying Laboratory is equipped with mobile stations, and the only con-
tinuous monitoring GPS station in Lebanon, namely the LAUG station, which is part of the UNAVCO consortium in the United States, and the International GPS Service (IGS). This Laboratory helps and enables students to understand the basic principles of surveying by conducting numerous field exercises. Most of the field exercises are con-
ducted outside the laboratory room to gather field data. Reduction and calculation of field data for final result is done in the laboratory room. In addi-
tion, activities include: collecting and modifying topographic maps, preparing digitized and GIS ref-
enced maps with related features, DGPS meas-
urements, presenting a general overview of geography, population, climate, water resources, water flows, dams, wastewater, water withdrawals, irrigation and drainage, on maps, survey and col-
lect various data, and analyzing that data.

The Soil and Geotechnical Laboratory is equipped with an automated direct shear boxes, triaxial cells, permeability cells, and a full SHARP asphalt concrete testing laboratory, in addition to a reflected light high precision microscope facility. Standard laboratory and field identification tests of soils, and their properties, in the disturbed and undisturbed forms, may be performed on soils.

The Water Resources Laboratory features modern instruments and apparatuses for testing of various fluids and water resources. Tests may be performed to measure fluid properties and behav-
ior, flow measurements, piping systems, pumps and their characteristics, flow conditions, open chan-
nels, turbines, suspended sediments and bed load analysis, river flows and characteristics, flow meas-
uring devices calibration and standardization, fluid friction, calibration of weirs, orifices, hydraulic jumps, forces on gates, hydraulic benches, flow regimes identification, flow velocities, dispersion studies, water depths and discharges, build the cor-
responding hydrographs, offer technical consulta-
tions on hydraulic, and hydrologic, flow problems.
SUPPORTING FACILITIES AND PROGRAMS

ELECTRICAL AND COMPUTER ENGINEERING LABORATORIES

The Advanced Networking Laboratory features the latest networking devices from Cisco Systems. It places students in direct contact with advanced LAN and WAN devices, performing various real-life operations, including simulated router traffic, problem troubleshooting, and company-wide configurations.

The Advanced Technology Laboratory features different technologies, such as Microwave and various types of antennas with design and testing package for test reception, radiation pattern, and various other parameters on the airwaves, a high-end GPS station with differential base station (DGPS), used for various field experiments, a 6 DOF Robot manipulation section, used in various automated applications, and a 6 DOF Inertial Measurement Unit, used in aerospace applications. In addition, this Lab features a variety of state-of-the-art software to be used for the analysis, and design, of telecommunication systems.

The Communication Systems Laboratory introduces students to the different analog, and digital, communication systems using educational modulation and demodulation boards. The data acquisition for the associated experiments is done using MATLAB/SIMULINK, which provide a display of various signals in time and frequency domain.

The Control Systems Laboratory introduces students to the implementation of PID-controllers, and two-step controllers, to first-order delay, as well as third order delay, systems using educational PID boards and DC servo boards. Experiments and analysis use industrial standard oscilloscopes, and data-acquisition boards interfaced via SIMULINK/ MATLAB.

The Digital Design Laboratory is the home of all the microprocessor design and reconfigurable computing courses. Students who take microprocessor programming courses come in with real life, step-by-step, processor programming. They learn to program, at the assembly level, all the types of devices and appliances such as a small video game, or a digital clock and stopwatch, etc. In addition, FPGA-based hardware boards are used for rapid prototyping. Students use hardware languages such as VHDL to design more complex digital circuits, such as pipelined simple processors, VGA controllers, and neural networks, and execute them on the FPGA platforms.

The Electromechanics and Power Laboratory features test benches for testing three phase circuits, single, and three phase transformers, AC machines both synchronous and induction, and DC machines. A model of a transmission line is also available for simulating power line capability and compensation. A power electronics test bench can simulate AC/DC DC/AC DC/DC conversions using thyristors, GTOs and MOSFETs.

The Instrumentation and Electronics Laboratory features the practical and technical aspects of electronic, and electric, circuitry. The student learns how to design, and analyze, basic and advanced circuits, through the usage of state-of-the-art digital equipment such as oscilloscopes, function generators, and multimeters.

The Linux Programming Laboratory is targeted towards the Linux Operating System environment. Linux and UNIX have always been the best platforms in terms of reliability, and many reputable companies use UNIX servers for their core network services. Courses such as Operating Systems, Networks, and other advanced topics, use this Lab extensively.

The Micro-Computer Laboratory is a general engineering environment where students from all the Engineering Majors, gather to work on their assignments and projects, or simply browse the internet. It is composed of high-end workstations, dual booting Microsoft Windows, and Red Hat Linux operating systems. Most of the general engineering applications, as well as office productivity software, are centralized in this area. The Lab opens at 8 a.m. and closes at 8 p.m. During rush periods, the Lab is open late, and sometimes overnight.

The Manufacturing Laboratory features a CNC vertical milling machine, and a CNC lathe. The Lab is equipped with twenty computers networked to the machines in a classroom environment. This setup allows the students to build, analyze, and then manufacture, a modeled part.

The Mechanical Engineering Materials Testing Laboratory features a servo-hydraulic testing system, where a wide variety of tests can be performed ranging from simple tension/compression tests, to fracture mechanics, mechanical fatigue, and high rate testing. The system includes a console with controlling software, which allows the tests to be programmed and controlled, and the data to be acquired and processed. This Lab also includes a Brinnell test machine to measure the hardness of metals.

The ICE Laboratory features a petrol engine, and a diesel engine. Both engines can be connected to a dynamometer and control unit. The engines and control unit are equipped with the instrumentation required to allow students to monitor, and measure, the different parameters required to analyze the operation of the engine, such as RPM, torque, inlet and exhaust temperatures, inlet air flow rate, and fuel flow rate. In addition, the Lab includes a sectioned, electrically operated, four-cylinder engine, which allows students to observe the operation of the engine’s internal parts.

The Machine Dynamics Laboratory has a range of equipment, designed to meet the needs of students who are required to understand the basic principles of machines. The Lab includes a whirling of shafts apparatus, a cam analysis machine, a balancing of reciprocating masses apparatus, in addition to a vibration apparatus, where experiments can be performed on pendulums, springs and rotors, covering free and forced vibration, damping, and torsional oscillations.

The Heat Transfer Laboratory features several equipment, such as a heater; a heat exchanger, a steam generator, a vacuum pump, a water bath, and a temperature controller, where several types of heat exchangers, such as heat pipe and tube, concentric tube, and plate and jacketed vessel heat exchangers, can be studied. Instrumentation is provided to allow the evaluation of the processes occurring in each heat exchanger.

The HVAC Laboratory consists of an air conditioning laboratory unit, which allows the processes governing air conditioning to be demonstrated. It also allows students to investigate the measurement and calculation of all the thermodynamic processes involved in the heating, cooling, humidification, and dehumidification of air, as well as the mixing of two air streams.

The Heat Transfer Laboratory features a series of equipment on which various experiments can be performed to demonstrate the three basic modes of heat transfer which include: conduction (linear and radial), convection (steady and unsteady state), and radiation heat transfer. The Lab also includes a heat exchanger unit where several types of heat exchangers, such as shell and tube, concentric tube, and plate and jacketed vessel heat exchangers, can be studied. Instrumentation is provided to allow the evaluation of the processes occurring in each heat exchanger.

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SUPPORTING FACILITIES AND PROGRAMS

PHARMACY LABS

The Pharmacy Research Lab is designed to allow Faculty, and Pharm.D candidates, to conduct their research projects. Instruments in the lab include HPLC systems which are equipped with a variety of detectors (absorbance, PDA, electrochemical, fluorescence, conductivity, and refractive index), enabling their use for a variety of applications. In addition, the Lab is also equipped with a freeze dryer, incubators, and a centrifuge apparatus.

The Pharmaceutical Analysis Lab is designed to familiarize pharmacy students with the different techniques used in pharmaceutical analysis. These techniques include those used in pharmaceutical industry such as spectroscopic, chromatographic, enzymatic and biotechnology methods. For this purpose, the Lab is equipped with an HPLC, a GC, a dissolution apparatus, an FTIR spectrophotometer, an ELISA, an electrophoresis, a microplate reader, and a PCR.

The NMR and GC-MS Lab is mainly used by Faculty, and contains a 300 MHz NMR spectrometer, suitable to run different 1D and 2D NMR (homo and heteronuclear) experiments. There are two GC-MS systems, one of which is equipped with a purge and trap system. The GC-MS systems are used to separate and identify volatile compounds in plants and biological fluids.

In the Compounding Laboratory, students learn the fundamental techniques used for the extemporaneous preparation of dosage forms, as part of the requirements of Dosage Forms I and Dosage Forms II courses. The Laboratory deals with the formulation, preparation, handling, and evaluation of pharmaceutical products.

The Lab includes the preparation of drug products using traditional approaches (mortar and pestle, spatula and slab), as well as modern technology. Basic equipment includes the water bath, hot plate, magnetic stirrer, oven, electronic balance, and vortex. More sophisticated equipment such as the optical microscope, sieve shaker, planetary mixer, homogenizer, fluidized-bed dryer, tablet press, hardness tester (also measures the thickness and diameter of the tablet), friability, and disintegration apparatus, are also available.

The Pharmacy Dispensing Laboratory supports course instruction on the proper techniques and skills required to safely, and accurately, distribute drug products to patients. Emphasis is on computerized patient record keeping, patient counseling, finding errors and omissions in prescriptions, and communication with other health care providers and patients. Thus, the Dispensing Laboratory is designed to mimic a community pharmacy. It includes shelved medications, storage cabinets, counseling area desks, auxiliary medication labels, personal computers, a printer, a bar code reader, and pharmacy textbooks.

NURSERY SCHOOL

LAU has a modern Nursery School, with a curriculum based on the latest in child development, and early childhood research. The importance of these early years has been well documented. The School’s Program addresses the needs of children between the ages of two-and-a-half and five, and concerns itself with the total development of the child. The medium of education is play, based on the fact that a child learns more by doing than by observing and listening. The teachers are all university graduates, with a ratio of one adult to ten children. The facilities include observation booths, making it possible for parents, visiting teachers, and students, to observe without disturbing the children.

The Cooperative Learning Center

While cooperative learning is widely practiced in the classroom, LAU has a special Center aiming to encourage academically deficient students to work more effectively, with the assistance of their academically excelling peers. The Center, which functions on the Beirut and Byblos campuses, is administered by students under the supervision of Faculty Advisors. Among other advantages, the Cooperative Learning method achieves the following:

- It allows students to improve their academic performance by trying alternative methods of studying.
- It promotes cooperation between students.
- It gives students the opportunity to reinforce their knowledge and improve their communication skills, by sharing what they have learned.
- It provides students who run the Center with managerial experience, and a sense of responsibility.

At the Center, students identify the courses in which they usually have difficulties with, and offer review sessions in these courses. The Center also provides study resources such as: sample exam questions, solved problems, computer media, audio-visual materials, and reference books. It also organizes workshops, periodically, to train the students who will then be in charge of coaching others.
CONTINUING EDUCATION PROGRAM

Developing a culture of lifelong learning for all has become an international purpose. The mission of the Continuing Education Program (CEP) is to provide innovative learning opportunities. In doing so, students will obtain academic and technical training, which may lead to the advancement of one’s employment condition, the improvement of one’s performance on a current job, and the enhancement of the quality of life, without enrolling in the regular University Programs.

Its importance is in providing adult learners with a program that is regularly adjusted to the social changes, and the marketplace development, with flexible schedules, contents, and presentation. The Continuing Education Program is an attractive, and convenient, means for personal and professional growth.

REMEDIAL COURSES

Remedial courses help students who do not meet the University’s Admissions requirements. Through these courses, students can improve their skills in English, mathematics, physics, chemistry, biology, and humanities. They also acquire study skills that will be of use to them throughout their university studies.

BUSINESS COURSES

Business courses are convenient to people who are forced to look for alternatives when it comes to finding a job in a congested market, or who decide on midlife career changes. Those who are ambitious may find a competitive edge through further education at the CEP. Courses offered include:

1. Elementary Business Principles
2. Accounting
3. Marketing
4. Management
5. Human Resource Management

Business courses are offered three hours per week, for 12 weeks.

COMPUTER COURSES

These introductory, as well as advanced level, computer usage courses are offered three hours per week for 12 weeks. Topics emphasize on business application software (word processing, spreadsheet and data base management), hardware concepts, and software integration.

Computer graphics courses are tailored for those who wish to keep abreast of new technology. Courses offered include Web Page Design using Front-Page, Photoshop and Illustrator, Animation using Flash, Web Page Design and Visual Interdev, and QuarkXpress. Once students complete all five courses, they are able to design an interactive Web Page using different software applications. A certificate is issued upon completion of each course. Classes are given four hours per week, for five weeks.

CERTIFICATE PROGRAM

Candidates with a high school-level education may enroll in one of our Certificate Programs.

The Pre-School Training Program is designed to prepare students for employment, and career advancement, in the field of Childhood Education. The aim of the Program is to provide students with sufficient knowledge, and practical skills, to be able to plan and implement developmentally appropriate programs for children, from ages 2-6 in various types of child care settings. Through this one-year (three-semester) Program, trainees update their teaching methods and earn a certificate.

The Development of Secretarial Skills Program was launched in 1997-1998. Students enrolled in this Program take courses in business, computer usage, office management, behavioral skills, and English correspondence. The Program spans one academic year, and confers a certificate in Secretarial Skills.

SPECIAL ARABIC COURSES

These courses are ideal for foreigners whose job demands the use of Arabic, be it classical or colloquial. A tailored Arabic class, along with the tutorial instruction, allows the students the advantage of choice. These courses aim at teaching proficiency in the four language skills, namely: speaking, reading, writing, and listening.

ART COURSES

The CEP offers Art courses usually taken for personal satisfaction. They encompass painting, drawing, photography, pottery, jewelry craftsmanship, home decoration, and guitar appreciation. Classes are given three hours per week for 12 weeks.

PHYSICAL EDUCATION COURSES

LAU’s indoor swimming pool answers the need of many schools where swimming is a required sport for the French Baccalaureate. Other physical education courses, such as tennis and stretching, are also popular.

NON-CREDIT COURSES FOR SUSPENDED STUDENTS

LAU introduced, in the Fall 1998 semester, a program to help suspended students. It consists of four non-credit courses that students may take during the span of their suspension period from the University. The courses offered, through the CEP, are:

1. Stress and Time Management
2. Academic Survival Skills
3. Communication Skills
4. Logic and Methods of Reasoning

These courses are graded on a Pass/Fail basis.

OFF-CAMPUS PROGRAM

An off-campus English Program was launched in Nabatieh, South Lebanon, to prepare students for the English Entrance Exam. The CEP is ready to offer similar services in other distant areas, to save their residents housing and commuting expenses, hoping to encourage them to pursue higher education.

SUMMER CAMP

The CEP offers a two-session (July and August) Summer Camp for children ages 6-12. The Camp consists of a combination of an existing and well-rounded program, and a talented, creative, and experienced, staff that provide an extraordinary summer experience for children. Children are exposed to the regular day Camp, and participate in various activities including cooking, basketball, tennis, music, drama, gymnastics, wushu, art, swimming, storytelling, and board games.

A “Little Business Leaders” Program teaches children ages 9–12 how to start a business, manage budgets, and integrate their creative skills into the entrepreneurial world. The Program includes four hours per week of business education, in addition to other activities encompassing drama, art, swimming, tennis, wushu, basketball, cooking, chess, and water polo.

SUMMER INSTITUTE FOR INTENSIVE ARABIC LANGUAGE AND CULTURE

The Summer Institute for Intensive Arabic Language and Culture (SINARIC) program, at the Lebanese American University’s Beirut campus, offers four levels of intensive courses in the Arabic language and culture: Elementary, Upper Elementary, Intermediate, and Advanced. Each level provides a total of 20 hours per week of intensive classroom instruction, which includes five hours per week of Lebanese dialect. An intensive, eight-credit course in Lebanese dialect is also offered (with sufficient enrollment). The program starts the last week of June, and ends the first week of August.

Formal instruction in the Arabic language is enriched by immersion in an authentic cultural context. Cultural activities include weekly lectures on topics related to the Arab and Lebanese politics, history, society, and culture, as well as excursions to historic, touristic, and cultural, sites in Beirut, and throughout Lebanon.
CAMPUSES

BEIRUT

The atmosphere in which university students live and work plays a vital part in their education. The hillside campus, in a residential area of Ras Beirut, provides the necessary climate for a well-planned academic life.

The Beirut campus’ total land area is 24,525 square meters, including recently acquired properties. The campus has been significantly enlarged by adding 24,000 square meters for the building complex that houses the School of Business and the Library. Currently, 11 buildings surround the central campus green, which is beautifully landscaped with Mediterranean trees and foliage. A feasibility study is underway for the construction of a new facility on one of the University properties, whose usage will be determined upon the development of a Master Plan.

BYBLOS

In the Spring of 1987, the University was given a 113,000-square-meter plot of land in Blat, overlooking Byblos city.

The campus has grown to become the seat for 5 Schools: Arts and Sciences, Business, Engineering and Architecture, Pharmacy, and more recently, the Medical and Nursing Schools. An additional 52,000 square meter plot, to house the two dorms, was purchased later on to make the total area of the campus about 160,000 square meters. The Byblos campus includes 9 buildings.

The envisaged construction in Byblos will include the Frem Civic Center, the Gibran Khalil Gibran Library, and the Medical and Nursing Schools’ building. A main underground parking, for about 635 cars, will also be constructed at the center of the Byblos campus.

A Master Plan is also defining the locations of a Sports Center, and a building to house the Engineering Labs, and the University Workshops and Services.

The Byblos campus services will be enhanced by centralizing the campus infrastructure plants in a remote site, serving the campus through an underground tunnel to supply electricity, potable, chilled, and hot water, to new facilities, as well as data and communication lines.

The future facilities will add around 62,000 square meters of built-up area, when completed, bringing the total Byblos campus built-up area to 99,000 square meters.

STUDENT LIFE

STUDENT AND UNIVERSITY POLICY

Since its foundation, the Lebanese American University has contributed to the total development of its students. As stated in the Student and University Policy, the University “seeks to develop responsible students with leadership skills, and community awareness... LAU shall provide its students with opportunities to develop academically, physically, intellectually, socially, and morally, in order to meet the challenges they may face in life.” These aims are pursued both by the Academic, and Student Development and Enrollment Management, offices at LAU.

GUIDANCE OFFICE SERVICES

The Guidance Office is charged with providing students with opportunities for academic growth and personal development, in order to enrich the student’s overall experience at LAU. Each student is seen as a professional in training, deserving high-quality services and personalized attention.

1. NEW STUDENT ORIENTATION

The New Student Orientation Program is an effort by the Guidance Office and various academic units of the University, to acquaint newcomers and their parents with the University offices and the University’s rules and procedures. The three-day program allows students to function effectively from the outset of their academic life. The goals are to:

- Introduce students to programs that will support their academic and personal success, as responsible members of society.
- Provide students with information about University services and systems.
- Address issues and problems that students may face.
- Help students adapt to University life, in order to become active members of the LAU community.

2. COUNSELING SERVICES

LAU offers counseling services to support its students on a wide range of issues including their personal relationships, careers, and educational concerns. High-quality counselors help students deal effectively with stress, anxiety, indecision, anger, depression, and other personal issues.

3. PROFESSIONAL ADVISING SERVICES

Advisors at the Guidance Office help students overcome academic difficulties, probationary status, and concerns regarding academic issues. Professional Advisors present students with alternative courses of action, based on their capabilities and interests, in order to readjust their goals if necessary. Discussions are maintained in strict confidentiality.

Advisors are charged with:

- Providing accurate information regarding policies, procedures, regulations, educational options, major and minor requirements, curricula, registration procedures, deadlines, etc.
- Maintaining precise and complete student records.
- Referring students to available programs, or support services, when needed.
- Helping students understand the purposes, opportunities, and challenges, of higher education.
- Aiding students in planning an educational program consistent with their interests, abilities, and talents.
- Acting promptly on reports sent by the faculty to help students with difficulties.
- Monitoring students’ progress towards their academic goals.
- Guiding students in planning courses of action to correct academic difficulties.
- Responding to parents’ inquiries.
- Cooperating with Academic Advisors to solve students’ problems.
STUDENT LIFE

4. CAREER GUIDANCE SERVICES
Career guidance is provided to graduate and undergraduate students. The Career Counselor encourages students to explore career options, develop effective planning skills, create a job plan, identify career goals, and learn the necessary skills to succeed in the chosen profession. Courses of action are recommended, based on the objectives expressed by each student. The Career Counselor works with students to:

- Clarify their academic and career interests, and to help them choose the right major.
- Identify connections between each student’s major, and career options.
- Research potential employers.
- Discover job search strategies.
- Acknowledge skills and strengths.
- Write effective résumés and cover letters.
- Prepare for interviews.
- Evaluate job offers from potential employers.
- Learn to negotiate salaries.
- Determine a course of action to meet career objectives.

The University hosts an annual career fair in which local, and international, companies offer LAU students full-time, part-time, and internship opportunities.

5. HEALTH SERVICES
Preliminary health care, health education, and counseling are provided to students, faculty, and staff. A full-time certified nurse is available on campus, during week days to respond to student needs. Students are enrolled in a medical insurance plan designed to alleviate financial difficulties arising from illness or accident.

6. EXTRA-CURRICULAR ACTIVITIES
LAU students organize, and participate in, extracurricular activities, through a variety of campus clubs dedicated to cinema, music, debate, drama, the Red Cross, human rights, social work, and international affairs, to name a few areas of interest. The Guidance Office coordinates the formation of clubs, and faculty advisors provide assistance towards achieving club objectives.

7. INTERNATIONAL STUDENT PROGRAM AND NATIONAL CULTURAL CLUBS
With 73 nationalities represented on its campuses, LAU has developed programs to help foreign students adapt to the Lebanese way of life, as well as fully integrate into the University community. Through various national cultural clubs, students get to network with peers from their countries, while learning to appreciate and celebrate diversity.

8. STUDENT HONOR SOCIETY
LAU students whose cumulative GPA is 3.5 or higher, upon completion of 24 credits, are honored at an annual ceremony where they receive awards and certificates of appreciation. To further recognize academic achievement, students with the highest GPAs in each school receive a financial award during the ceremony.

9. STUDENT PUBLICATIONS
The Guidance Office coordinates, and supervises, the production of publications, such as the Trireme (Yearbook), the Student Handbook, the Biodata (a collection of CVs of graduating students), and the University Desk-Calendar. A bimonthly online publication, the Student Development E-Magazine, was launched in the Spring of 2006.

10. STUDENT REPRESENTATION
LAU introduced Campus Student Councils, as well as a University Student Council. A constitution to that effect was approved by the Board of Trustees in September 2006, and the Bylaws were written by a Committee of students and University officials. The first student elections under the new system were held in the academic year 2007–2008.

11. ATHLETICS
As LAU grows, the Physical Education and Athletics Program continues to thrive, playing a vital role in the academic and extracurricular life of students. The program’s mission is to allow student athletes to distinguish themselves, through the constant quest for high achievement, and pursuit of excellence, based on sound educational principles, and practices. All students are constantly encouraged to participate in, and benefit from, various activities that expose them to enjoyable, and often memorable, experiences. LAU athletes learn the meaning of integrity, ethical conduct, fair competition and sportsmanship, and the Athletics Program underlines commitment, loyalty, and team building.
ADMISSION TO UNDERGRADUATE PROGRAMS

Candidates for admission may apply to any of the two campuses, Beirut or Byblos, by sending an application to the campus they choose to join.

Applicants may apply to LAU as Regular or Special, or as Freshman, Sophomore, or Transfer, for the Fall semester, the Spring Semester, or the Summer term.

Application forms are available at the Admissions Offices, and can be mailed to applicants upon request. They can also be downloaded from the LAU website at: http://www.lau.edu.lb.

REQUIREMENTS FOR ADMISSION

Applicants must submit the following items:

a. An application form
b. School record (the school grades of the last three years should be sent in a signed, and sealed, envelope, directly to the Admissions Office. The grades of the last year, or semester, should be sent, as soon as they become available)
c. Official scores of the Test of English as a Foreign Language (TOEFL), and/or the Scholastic Assessment Test (SAT) exams, if taken.
d. Transfer applicants must submit an official transcript of grades, and a catalog from all the colleges, or universities, they have attended. Undeclared transcripts cannot be accepted after enrollment.
e. A photocopy of the Identity Card or Passport (this should be the same as the nationality to be used in the registration).
f. Two recent, passport-size, color photos.
g. A non-refundable fee of $50 (L.L. 75,000).
h. The official Secondary School Certificate and its official Lebanese Equivalency, as soon as they become available.

N.B.

Applicants may not reclaim any of the above documents, once submitted to LAU.

Applicants who choose to sit for the TOEFL should sit for the international test. Institutional TOEFL is not accepted at LAU.

When registering for the TOEFL, SAT I, or SAT II, please use LAU’s code: 2595.

Applicants will be evaluated by the University Admissions Council, and final acceptance will be based on each applicant’s qualifications, and availability of places.

LAU offers three sets of examinations through its Testing Services Office:

- The English Entrance Exam (EEE)
- The Freshman Exam (FE)
- The Sophomore Exam (SE)

ENGLISH PROFICIENCY REQUIREMENT

Since English is the language of instruction at LAU, applicants must demonstrate proficiency in the English language. This may be determined in one of the following ways:

a. A pass on the EEE administered at LAU, with a minimum score of 500. This exam may be repeated at intervals of one month.
b. A minimum score of 193, computer-based, or 525, paper-based, in the TOEFL, or its equivalent in the internet-based TOEFL.
c. Applicants with EEE scores between 500 and 549, and/or 193 and 230 in TOEFL, computer-based, or 525 and 573, paper-based, or its equivalent in the internet-based TOEFL, will have to register for ENG009 Remedial English, a three non-credit course (three hours of instruction weekly, with no credits counted after the completion of the course).
d. Applicants with EEE scores in the range of 550–599, or TOEFL scores of 240–293, computer-based, or 577–625, paper-based, or its equivalent in the internet-based TOEFL, will be exempted from ENG009 Remedial English, a three non-credit course.
e. Applicants with EEE scores in the range of 600–649, or TOEFL scores of 263–297, computer-based, or 627–673, paper-based, or its equivalent in the internet-based TOEFL, will be exempted from ENG009 Remedial English and ENG101 English I.
f. Applicants with EEE scores above 650, or TOEFL scores above 297, computer-based, or 673, paper-based, will be exempted from ENG009 Remedial English, ENG101 English I and ENG102 English II.

ADMISSION TO THE SOPHOMORE CLASS

Applicants who might qualify for admission to the Sophomore class are:

b. Holders of the Technical Baccalaureate: These applicants may only choose programs in the same area of specialization as that of their technical degree, or as assigned by the Ministry of Education.
c. Holders of the official Secondary School Certificates, equivalent to the Lebanese Baccalaureate: French Baccalaureate, International Baccalaureate, German Abitur, Tawjihi, and others. It should be noted that Lebanese applicants must obtain an official equivalence from the Lebanese Ministry of Education.
d. Applicants who have successfully completed two years of the Canadian Collège D’enseignement General Et Professionnel (CEGEP) Program.
e. Applicants coming from the British system, who have completed a minimum of three subjects at the Ordinary Level, in addition to two subjects at the Advanced Level, or four Advanced Supplementary subjects, excluding languages.

N.B.

Applicants who have permission from the Equivalence Committee of the Lebanese Ministry of Education to pursue their education in a foreign program, are automatically exempted from the Arabic requirements.

Applicants studying abroad and holding official degrees equivalent to the Lebanese Baccalaureate, and who are eligible to go into the Sophomore class but choose to be admitted in the Freshman year, will be exempted from the SE, and must complete all Freshman requirements, except Freshman Arabic courses.
ADMISSION TO UNDERGRADUATE PROGRAMS

ADMISSION TO THE FRESHMAN CLASS
Applicants who might qualify for admission to the Freshman class are:

b. Applicants coming from the British system, and having completed a minimum of five subjects at the Ordinary Level, and one subject at the Advanced Level, or two Advanced Supplementary Level subjects, excluding languages.
c. Applicants who have successfully completed one year of the Canadian (CEGEP) program.
d. Holders of the International Baccalaureate certificate from outside Lebanon.

Holders of a General Certificate of Education (GCE) certificate with only O-level subjects do not qualify for admission.

Admission of Lebanese Applicants to the Freshman Class
Lebanese applicants admitted to the Freshman class must obtain, prior to their registration, a permission, from the Equivalence Committee of the Lebanese Ministry of Education, stating that the student is allowed to enroll in a foreign program. To obtain this permission, the applicant must show evidence of having studied outside of Lebanon, for at least two years, at the intermediate and secondary level, or three years at the elementary level. The applicant should also sit for the SAT I and SAT II exams, prior to enrolling in the Freshman class.

The Equivalence Committee specifies a minimum score of 2750 for Freshman Arts, and 2850 for Freshman Science, for the six subjects of SAT I and SAT II combined.

The subjects in the SAT II exams, required for applicants to the Freshman Science, are:

- Mathematics 2C
- Two sciences from Biology, Chemistry, or Physics

The subjects of SAT II exams, required for applicants to the Freshman Arts, are:

- Mathematics I or IC
- Any two subjects can be chosen from the SAT II subject tests.

Admission of Non-Lebanese Applicants to the Freshman Class
Non-Lebanese applicants who qualify for admission to the Freshman class may sit for the SAT I exam, or take the Freshman Placement Exam administered at LAU.

TRANSFER FROM OTHER UNIVERSITIES

a. Students coming from LAU-recognized institutions of higher education, and who have met LAU’s admission requirements prior to their admission to the institution they are transferring from, may apply for admission.
b. Students who have successfully completed 12 credits will be accepted, without any Placement Exams. Students who have successfully completed less than 12 credits have to sit for a Placement Exam, FE or SE, depending on the class they have completed at school.
c. Transfer applicants must submit official transcripts of records, as well as academic catalogs from all the previous colleges, or universities, they have attended, along with the application for admission.
d. Evaluation of credits is usually made before the time of registration. The School concerned and the Registrar’s Office determine the acceptability of courses for transfer credits.
e. Transfer students coming from an LAU-recognized institution of higher education where English is the language of instruction, are required to take the EEE or TOEFL. However, if they had not taken any transferrable English course in their former institution, these students are given the option of either taking ENG009 Remedial English, or sitting for an English placement test. Transfer students coming from an LAU-recognized institution of higher education where English is not the language of instruction, are required to take the EEE or the TOEFL.

ADMISSION TO PROFESSIONAL SCHOOLS FOR A SECOND DEGREE
Applicants with a Bachelor’s degree may apply to a professional school, by filling out an application for admission in the Admissions Office. Applicants for the second degree must complete all the requirements of the school in which they intend to enroll.

VALIDITY OF ACCEPTANCE FOR ADMISSION
Admission is only valid for one calendar year. If a student is admitted for a certain semester and, for some reason, does not register, a “Reactivation Application” is needed. Reactivation Applications are available at the Admissions Office, free of charge.

SPECIAL PROGRAMS
Excelsior College Degree
This Program is designed by LAU and the Board of Regents of the University of the State of New York, for students who cannot secure equivalence for the Baccalaureate Degree from the Lebanese Ministry of Education. They may apply to the Freshman class, and, upon the completion of an Associate Degree, may pursue a bachelor’s degree in Liberal Arts, a bachelor’s degree in General Business, or a bachelor’s degree in Computer Science. Courses taken at LAU are evaluated by program officers in New York. Bachelor’s degrees are issued by the Excelsior College and not by LAU.

Non-Degree and Special Students
Non-Degree and Special Students are those who are eligible for admission, and choose to take courses for credit, without working towards a degree. Non-Degree Students may petition for a degree status.

Teaching Diploma
Applicants to the Teaching Diploma must have completed the requirements for the bachelor’s degree. Applicants graduating from an LAU-recognized institution of higher education, where English is not the language of instruction, are required to pass the EEE, or the TOEFL.

ADMISSION TO UNDERGRADUATE PROGRAMS

ADMISSION TO THE FRESHMAN CLASS
Applicants who might qualify for admission to the Freshman class are:

b. Applicants coming from the British system, and having completed a minimum of five subjects at the Ordinary Level, and one subject at the Advanced Level, or two Advanced Supplementary Level subjects, excluding languages.
c. Applicants who have successfully completed one year of the Canadian (CEGEP) program.
d. Holders of the International Baccalaureate certificate from outside Lebanon.

Holders of a General Certificate of Education (GCE) certificate with only O-level subjects do not qualify for admission.

Admission of Lebanese Applicants to the Freshman Class
Lebanese applicants admitted to the Freshman class must obtain, prior to their registration, a permission, from the Equivalence Committee of the Lebanese Ministry of Education, stating that the student is allowed to enroll in a foreign program. To obtain this permission, the applicant must show evidence of having studied outside of Lebanon, for at least two years, at the intermediate and secondary level, or three years at the elementary level. The applicant should also sit for the SAT I and SAT II exams, prior to enrolling in the Freshman class.

The Equivalence Committee specifies a minimum score of 2750 for Freshman Arts, and 2850 for Freshman Science, for the six subjects of SAT I and SAT II combined.

The subjects in the SAT II exams, required for applicants to the Freshman Science, are:

- Mathematics 2C
- Two sciences from Biology, Chemistry, or Physics

The subjects of SAT II exams, required for applicants to the Freshman Arts, are:

- Mathematics I or IC
- Any two subjects can be chosen from the SAT II subject tests.

Admission of Non-Lebanese Applicants to the Freshman Class
Non-Lebanese applicants who qualify for admission to the Freshman class may sit for the SAT I exam, or take the Freshman Placement Exam administered at LAU.

TRANSFER FROM OTHER UNIVERSITIES

a. Students coming from LAU-recognized institutions of higher education, and who have met LAU’s admission requirements prior to their admission to the institution they are transferring from, may apply for admission.
b. Students who have successfully completed 12 credits will be accepted, without any Placement Exams. Students who have successfully completed less than 12 credits have to sit for a Placement Exam, FE or SE, depending on the class they have completed at school.
c. Transfer applicants must submit official transcripts of records, as well as academic catalogs from all the previous colleges, or universities, they have attended, along with the application for admission.
d. Evaluation of credits is usually made before the time of registration. The School concerned and the Registrar’s Office determine the acceptability of courses for transfer credits.
e. Transfer students coming from an LAU-recognized institution of higher education where English is the language of instruction, are required to take the EEE or TOEFL. However, if they had not taken any transferrable English course in their former institution, these students are given the option of either taking ENG009 Remedial English, or sitting for an English placement test. Transfer students coming from an LAU-recognized institution of higher education where English is not the language of instruction, are required to take the EEE or the TOEFL.
ACADEMIC RULES AND PROCEDURES FOR UNDERGRADUATE PROGRAMS

PURPOSE
To define the Academic Rules of the Lebanese American University, and to state the Procedures involved in the implementation of these Rules.

PROCEDURE

It shall be the responsibility of the University Curriculum Council (UCC) to study any suggested changes to the Academic Rules and Procedures, and to submit its recommendations to the University Planning Council for final approval.

It shall be the responsibility of the Admissions’ Offices, and the University Admissions Council, to ensure that the Admission Regulations are properly administered.

It shall be the responsibility of the Registrar’s Offices to implement these Academic Rules and Procedures, and to observe the rules herein.

It shall be the responsibility of the Guidance Offices, and the Academic Advisors, to give general guidance to students.

It shall be the responsibility of every student to study, and to observe the Rules herein.

I. TRANSFER AND CHANGE OF MAJOR

A. TRANSFERRING FROM ONE LAU CAMPUS TO ANOTHER
Students who intend to transfer from one LAU campus to another may do so, provided they declare their intention by filling out a Transfer Form and submitting it by the specified deadlines. Once they transfer, they must register for, at least, 2 regular semesters in the new campus, before they are allowed to transfer back.

B. TRANSFERRING FROM THE ASSOCIATE TO THE BACHELOR’S PROGRAM, OR VICE VERSA
Students may request to transfer from the Bachelor’s Program to the Associate Program, or vice-versa. Such requests are handled by the Registrar’s Office. Courses common to both Programs, and courses needed as electives in the new Program, will be counted towards graduation.

C. CHANGE OF MAJOR
1. A student may request, at any time, from the School concerned, to change their Major. The Admissions’ conditions, and/or his/her academic performance at LAU, will be taken into consideration. Acceptance in the new Major is also conditional on the availability of places.
2. Students with an approved Change of Major will have the option of dropping, from the Grade Point Average (GPA) computation, the grades of 3 courses taken at LAU, belonging to the requirements of the old Major and not to any requested new Major. Only grades F, D, or C, can be deleted.
3. Students must submit a request to have their grades deleted at the Registrar’s Office, no later than one semester of the Change of Major, and not after graduating, or after leaving the University for more than 2 consecutive semesters. This rule applies for changes of Major within a School, or when a student transfers from one School to another.
4. Students who benefited from the above stated rule in C.2., cannot return to their old Major, and cannot request to have their Major changed, again, to any Major which requires a course whose grade was deleted from the GPA computation.

D. INTENSIVE ENGLISH REGULATIONS
1. To promote students from Intensive English to regular English courses, the following criteria should be used:
   a. ENG003 students must pass the course with a final grade of C, or above, or the Intensive English Comprehensive Examination (IECE) with a grade of C, or above, or score 500 or above, on the English Entrance Exam (EEE), or the equivalent in the Test of English as a Foreign Language (TOEFL).
   b. ENG002 students must pass the Intensive English course with a grade of C, or above, and pass the IECE with a grade of C, or above, or score 500 or above on the EEE, or the equivalent in TOEFL.
2. Students in ENG002 and ENG003 may take one course for credit each semester from the Arabic or Math disciplines, in addition to a Physical Education course.

E. ENGLISH REQUIREMENTS
1. Entering Freshmen and Sophomores, with a score between 550 and 549 on the EEE, or its equivalent in TOEFL, must take ENG009 Remedial English, (zero credit), ENG101 English I, (3 credits), and ENG102 English II, (3 credits) before the Sophomore-level English courses.
2. Entering Freshmen and Sophomores, with a score between 550 and 599 on the EEE, or its equivalent in TOEFL, must take 6 credits of English (ENG101 English I, and ENG102 English II), before taking the Sophomore-level English courses.
3. Entering Freshmen and Sophomores, with a score between 600 and 649 on the EEE, or its equivalent in TOEFL, must take 3 credits of English (ENG101 English I, and ENG102 English II), before taking the Sophomore-level English courses.
4. Entering Freshmen and Sophomores, with a score of 650 or higher on the EEE, or its equivalent in TOEFL, can take Sophomore-level English courses directly.
5. Students passing ENG003 Intensive English III, with an average of C, or above, or the IECE, with a grade of C, or above, are required to take ENG009 Remedial English, ENG101 English I, and ENG102 English II.

F. PHYSICAL EDUCATION REGULATION
Students may accumulate up to 2 credits of Physical Education besides PED101 Basic Health. Beyond this, Physical Education credits will not count towards graduation.

II. REGISTRATION RULES

A. REGISTRATION
1. Registration, on the assigned dates, is required of all students, in accordance with the posted procedures and regulations. Late registration is subject to a Late Registration Fee. Intensive English students, transferring students, cross-registering students, and students on double probation, as well as students returning after one or more semesters of absence, are exempted from the Late Registration Fee.
2. Students are not allowed to register after the Late Registration Period.
3. In order to register for a course, students must complete all the prerequisite(s) for that course.
4. No student may enroll in a course if he/she has an incomplete grade in their prerequisite(s).
5. In exceptional cases, the Chairperson may give special permission for registration if points 3 and 4, listed above, are not met.
ACADEMIC RULES AND PROCEDURES FOR UNDERGRADUATE PROGRAMS

B. STUDENT COURSE LOAD
1. A minimum full-time load, in a regular term, is 12 credits. A maximum load of 18 credits is allowed, or as specified by the Professional Schools.
2. Students with a cumulative GPA of 3.00, and above, are allowed to carry up to a maximum of 21 credits.
3. Students, in their last semester of graduation, may register for a maximum of 21 credits, provided they are in good academic standing.
4. Students who are on probation are not allowed to carry more than 13 credits in regular semesters.
5. The maximum course load per Summer module is 7 credits.
6. Students in the Professional Schools, who are registered in the Internship courses during the Summer modules, may be allowed to exceed the total allowed credits for the Summer, provided the requirements for the internship are fulfilled beyond the Summer modules.
7. In regular semesters, and in special cases, the Academic School Council may allow students to exceed the allowed maximum load, within the constraints of the University Charter.

C. REGISTRATION FOR PASS/NOT PASS COURSES
1. Students may choose to take free elective courses (Sophomore level and above) over and above the University requirements, and the Major requirements, on a Pass or No Pass basis.
2. Courses taken on a Pass or No Pass basis will not count in the GPA, but the credit hours successfully completed will be counted towards graduation. The Pass grade is given when the grade in the course is C, or above.
3. Students are not allowed to take more than one course per semester on a Pass or No Pass basis.

D. REGISTRATION FOR TUTORIAL COURSES
In exceptional cases, students are allowed to take courses on a Tutorial basis, subject to the following:
1. Students may apply for a Tutorial in their junior and senior years in the School of Arts and Sciences, and the School of Business, or during their last two years in the Professional Schools, provided they have completed, at least, 30 semester credits at LAU, with a GPA of 2.50 and above, or students who are graduating with a BA/BS Degree, and whose courses, in their last semester at LAU, are not offered.
2. Permission may be granted to a student to enroll in a Tutorial by the School Council, if all of the following conditions apply:
   a. A substitute is not offered at LAU.
   b. The approval of the Advisor and the Division Chairperson is secured.
   c. The School Council approves a petition of the student to be allowed a Tutorial before the beginning of the semester.
3. The Division Chairperson and/or the Academic Dean shall select the appropriate instructor for the Tutorials.
4. No student may take more than two courses as Tutorials in their Undergraduate Program. These credits shall not be taken in one semester. Non-graduating students should take, at least, nine other credits in regularly scheduled courses, or, at least, one other regularly scheduled course during the Summer.
5. Applied courses (labs and studios), and those being repeated, shall not be taken as Tutorials.
6. Tutorials involve close and regular monitoring of the student’s progress, therefore, course requirements, and the grading standards, set in a regularly scheduled course should apply to a Tutorial.

E. COURSE CHANGES AFTER REGISTRATION
Changes in registration are permitted, subject to the following provisions:
1. No course may be added, or a change of section be made, or the type of registration for a course (P/NP, audit…) be changed after the end of the Drop/Add period.
2. If a student drops a course within the Drop/Add period, no grade is recorded for that course and its fees will not be included in the Statement of Fees. Students who officially withdraw after the late registration period will receive a W. Withdrawing from courses is allowed only before the end of the 14th week of the Fall and Spring semesters, and before the last two teaching days of a Summer module.

F. COURSE SUBSTITUTION
Course substitutions in the Major courses may be made, under special circumstances, before final registration for the course, and upon the recommendation of the Department/Division concerned, and the approval of the Academic School Council. Substitution of the University requirements needs the approval of the Curriculum Council.

G. CROSS-REGISTRATION
1. Cross-Registering Between LAU Campuses
Students may be allowed to cross-register by following the Cross-Registration Procedures stated below:
   a. Fill in an intercampus Cross-Registration Form.
   b. Secure the authorized signatures of the Advisor, and the Chairperson of the Division offering the course.
   c. Have the courses registered in the Registrar’s Office.

Students cross-registering from one LAU campus to another are subject to the following condition:
   • At least 50 percent of the semester credits must be taken at the campus of origin of the student. This condition applies for regular semesters only, hence Fall and Spring semesters. During the Summer modules, students can cross-register for as many credits as they wish, within the limit allowed by the student’s course load regulation.  

2. Cross-Registering to Other Universities in Lebanon
Cross-Registration to another university in Lebanon may be allowed, only if a course in the last term of study is needed for graduation, and the course is not offered on any LAU campus. Furthermore:
   a. A cross-registered course will not be allowed for a repeat.
   b. The course will be treated as a transfer course.
   c. An agreement should exist between LAU and the university where the course is to be taken, before allowing for Cross-Registration. Students should pay at LAU.

The students must follow the following procedure:
   a. The student must fill out the Cross-Registration Form and a Regular Registration Form, and have them approved by the Advisor, and the Division/Department Chairperson.
   b. The student must secure the signatures of the Business Office, and the Registrar’s Office at LAU, and forward this to the registrar at the other institution.
   c. After completing the registration, and securing the authorized signature, in the space provided, at the other institution, the student must return the proper copy to the LAU Registrar’s Office.

No credit will be given for a course taken at another institution unless the above stated procedures are followed.
ACADEMIC RULES AND PROCEDURES FOR UNDERGRADUATE PROGRAMS

3. Registration in universities outside of Lebanon.
Students who, during their study at LAU, decide to take courses at universities outside of Lebanon should follow the following steps:
1. Prior approval of the Academic School Council is needed in order for the course to be transferred.
2. It is the duty of the student to provide the Academic School Council with the catalog, course description, and syllabus of the course(s).
3. The course(s) should not be a repeat.
4. The course(s) should not be within the last 30 credits needed for graduation.
5. The course is to be considered a transfer course.
A course may be transferred only if the student’s grade in the course is equivalent to C, or above. Transferred courses are not included in the GPA computation.

H. REFUND POLICY
Courses dropped after the Drop and Add period will not be refunded, and a grade of W will be recorded.

I. AUDITING COURSES
LAU students may audit courses; however, they should secure the consent of the instructor, and the Division/Department Chairperson, prior to registration. Students auditing a course will not receive credit for it.

III. WITHDRAWAL FROM THE UNIVERSITY
Students wishing to withdraw from one or more courses must follow the Withdrawal Procedure provided by the Registrar’s Office.

Students withdrawing from courses after the Late Registration Period, and before the Withdrawal Deadline (the end of the 14th week of the Fall and Spring semesters, and before the last two teaching days of a Summer module), will receive Ws for all the courses in progress.

IV. RE-REGISTRATION
Students who fail to register for, at least, one regular semester (Fall or Spring) are required to reactivate their files at the Registrar’s Office, before the registration period. If they do not register for four consecutive semesters they will have to re-enroll, according to the existing curriculum upon their return.

V. CLASSIFICATION OF STUDENTS
Students are classified as Full-Time when they enroll in 12 credits and above, and they are considered Part-Time when they enroll in less than 12 credits per semester.

A. DEGREE STUDENTS
Degree students are classified as follows:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Credit Hrs Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman (1st year)</td>
<td>0 - 29</td>
</tr>
<tr>
<td>Sophomore (2nd year)</td>
<td>30 - 59</td>
</tr>
<tr>
<td>Junior (3rd year)</td>
<td>60 - 89</td>
</tr>
<tr>
<td>Senior (4th year)</td>
<td>90 - 119</td>
</tr>
<tr>
<td>5th year</td>
<td>120 - 159</td>
</tr>
<tr>
<td>6th year</td>
<td>160 and above</td>
</tr>
</tbody>
</table>

B. SPECIAL STUDENTS
Students taking courses for credit but not working towards a Degree are classified as Special Students.

ACADEMIC RULES AND PROCEDURES FOR UNDERGRADUATE PROGRAMS

VI. ATTENDANCE REGULATIONS AND MAKEUP POLICY

A. ATTENDANCE REGULATIONS
Students are held responsible for all the material presented in the classroom, even during their absence. Makeup work and exams, if any, will be according to the rules spelled out in the course syllabus. In any semester, or term, students can miss no more than the equivalent of five weeks of instruction, in any course, and still receive credit for that course. However, instructors have the right to impose specific attendance regulations in their courses, provided that the above-stated limit of absences is not exceeded, and the minimum number of absences allowed is no fewer than the equivalent of two weeks of classroom instruction, after the Drop and Add period.

Such specific attendance regulations should be mentioned in the syllabi. Instructors are to inform their Departments/Divisions, and the Guidance Office, of any prolonged unexplained absence. The number of absences in Summer modules is prorated.

Students who exceed the allowed number of absences must withdraw from the course; otherwise, the course grade will be recorded as “F” (NP).

In highly exceptional cases, students may be given permission by the Academic School Councils to continue in the course.

B. MAKE-UP POLICY
All lost sessions are to be made up. When the number of lost days (resulting from suspension of classes, for any reason) in a regular semester add up to 10, they are to be made up as follows:
> Three days, to be made up according to a schedule set at the discretion of each Faculty member.
> Seven days, to be scheduled by a decision of the University Planning Council, in consultation with the Faculty.

The ten day period is seen as the period beyond which no makeup can be considered, and credit loss becomes inevitable. Alternately, the semester may be extended, and students may have to bear any additional expenses resulting from such an extension.

C. CLASS TIME
If the instructor is late to class, students are required to wait 15 minutes before leaving.

VII. CLASSROOM SCHEDULING AND CLASS SIZE

Classrooms are assigned by the Registrar’s Office. Instructors wishing to make classroom changes must first clear such changes with the Division Chairperson, and the Registrar’s Office.

When determining class size, the following guidelines will be followed:

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture courses</td>
<td>40 students</td>
</tr>
<tr>
<td>Language and Seminar courses</td>
<td>25 students</td>
</tr>
<tr>
<td>Studio, Lab, Internship, and</td>
<td>20 students</td>
</tr>
<tr>
<td>Physical Education courses</td>
<td></td>
</tr>
</tbody>
</table>

Normally, an addition of no more than 10% will be used to account for possible attrition.
A. REGULATIONS AND PROCEDURES

1. Final examinations are held at the end of each semester and Summer module. Final examinations should not count for more than 40 percent of the course grade. At least two tests, and/or graded projects, should account for the remaining percentage of the course grade.

2. If a student absents himself/herself from a final examination, a grade of zero will be given for that examination. Accordingly, the course grade will be calculated, and reported, with a “missed final” note if, within one week, the student submits an excuse, which is acceptable to the Instructor and/or the Division/Department concerned, then the student will be given a makeup final examination. If an excuse is presented after the lapse of a week, and within one month, the student may petition the School concerned to have his/her grade changed to an “I”, and to be allowed to sit for an examination, and have the final grade adjusted accordingly, within a deadline set by the School concerned, but not exceeding the deadline of Incomplete grades (refer to section IX-A Grading System). If a valid excuse is presented before the course grades are out, the Instructor of the course may give an incomplete grade, if the conditions stated in Section IX-A are met.

3. Any incomplete work (refer to section IX-A Grading System) must be made up at a time planned with the Instructor, but no later than the eighth week of the following semester (Fall or Spring) in which the student is enrolled at the University Otherwise, the grade of “I” is changed to an “F” (or an NP) if it is the responsibility of the student to contact the Instructor to make the arrangements for the completion of the incomplete work. In the case of Senior Study and Internship courses, as well as final year projects, the incomplete work must be completed no later than one full year after the end of the semester, or module, in which the grade of “I” was received. In no case may such work be made up after a lapse of one year from the end of the semester, or module, in which the grade of “I” was received.

4. Final examinations will not be scheduled on dates outside the stated examination period. In case of an emergency, a student may request an early final exam. Such a request needs the approval of the Instructor of the course, and the Division/Department Chairperson.

5. No more than three final exams will be scheduled, per day, for any student. In case a student has more than three scheduled final exams in the same day, the student is entitled to have the final exam of the highest course number rescheduled.

6. When there are final examination conflicts between an LAU course, and a course at another institution, the student involved must resolve the conflict with the LAU instructors in advance.

7. When there are final examination conflicts among LAU courses, students must inform the Registrar’s Office by the deadline indicated on the examination schedule.

8. Students are entitled to review their final examination paper in the Instructor’s office (or the Division/Department Chairperson’s office, in case of the absence of the instructor concerned). Final examination papers will be retained by the Instructor or the Division/Department Chairperson for the following two regular semesters.

9. Some of the above rules, namely rules 1, 4, and 8, may not apply to the Design, Studio, Project, Seminar, and Research type courses. In such cases, School-specific regulations may apply, as specified in the course syllabus, and approved by the Academic School Council.

10. In case of illness, or major emergency leading to absence from an announced examination, a student must notify within a week, the Guidance Office, and the instructor/Division/Department concerned.

II. SCHOLASTIC STANDING

A. GRADING SYSTEM

The University Grading System uses a series of letters to which grade quality points are assigned. The Grade Point Average (GPA) is calculated according to a procedure outlined in the following section.

The University Grading System uses a series of letters to which grade quality points are assigned. The Grade Point Average (GPA) is calculated according to a procedure outlined in the following section.

Grade A indicates work of excellent quality. It is valued at four quality points for each credit hour.

Grade B indicates work of good quality. It is valued at three quality points for each credit hour.

Grade C indicates a satisfactory achievement. It is valued at two quality points for each credit hour.

Grade D indicates the minimum passing grade, and is indicative of poor performance. It is valued at one quality point for each credit hour.

Grade F indicates an unsatisfactory performance in the course. It has zero quality points. No credit will be added to the student’s record.

Grade P indicates a passing performance in a course taken on a Pass/No Pass basis. The credits if any, will be added to the number of credits passed, but will not be included in the average. It has no quality points.

Grade NP indicates a failing performance in courses taken on a Pass/No Pass basis. No credits will be added to the student’s record, nor will the average be affected. It has no quality points.

Grade U indicates a course taken on an auditing basis. It has no quality points, and the credits will not be added to the passed credits.

Grade W indicates an official withdrawal from a course, after the Late Registration Period, and before the end of the 14th week of the Fall and Spring semesters, and before the last two teaching days of the Summer modules. It has no quality points. It does not count in the average, and no credits will be added to the student’s record. A Withdrawal Form must be submitted by the student to the Registrar’s Office.

Grade I indicates incomplete work. This grade is exceptionally given by the Instructor when a student, with a valid excuse, did not sit for the final exam, and/or did not present the final project. Students will not be entitled to an “I” grade, unless they have a passing grade of the completed material, throughout the course, and so long as they have not exceeded the allowed number of absences.

The “I” grade does not count in the average, and it adds no credits to the student’s record.

Section VIII A-3 of this document explains how to have the grade of “I” changed to a different grade.
ACADEMIC RULES AND PROCEDURES FOR UNDERGRADUATE PROGRAMS

B. GRADE POINT AVERAGE (GPA)
All courses taken by a student at LAU will be included in the computation of the cumulative Grade Point Average. The Grade Point Average is the ratio of the number of points gained, to the number of credit hours attempted.

Example of semester GPA computation:

<table>
<thead>
<tr>
<th>Course</th>
<th>Grade</th>
<th>Credit</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARA201 Arabic</td>
<td>D</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>BIO101 Biology</td>
<td>A</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>ENG102 English</td>
<td>C+</td>
<td>3</td>
<td>2.33</td>
</tr>
<tr>
<td>CST201 Cultural St.</td>
<td>B-</td>
<td>3</td>
<td>2.67</td>
</tr>
<tr>
<td>PED101 Basic Health</td>
<td>F</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

The semester GPA = Total semester quality points / Total semester credit hours attempted.

The semester GPA for the five courses stated above would be: 34/14 = 2.42

Courses in which grades P, NP, U, W, and I have been given are not counted in computing the GPA.

C. REPEATING COURSES
1. An Undergraduate student may repeat a course, up to two times, and will receive credit once for the course. It should be noted that a withdrawn course counts as a repeat. Students are not allowed to repeat a course in which they have earned a grade above C or an incomplete. When a course is repeated, only the highest grade earned in the course will be included when calculating the student’s cumulative, and Major GPA.

2. Once a student registers in a course that was transferred from another institution, this transferred course will be deleted from the transcript, and replaced by the course, and grade, taken at LAU.

3. Courses taken at LAU cannot be repeated at another institution, and transferred to LAU in cases where agreements between LAU and other institutions of higher learning exist, transfers may be authorized, provided that prior approval of the courses taken has been secured.

4. Students are not allowed to register in any course more than three times, including withdrawals. Students unable to get a passing grade after taking the course three times will be dropped from the University, or the Program, depending on whether the course is part of the General University Requirements, or the Program Requirements.

D. GRADES AND PROGRESS REPORTS
1. All semester grades must be turned in to the Registrar’s Office no later than 72 hours after the particular final examination is given.

2. Course grades will not be changed, except in the case of an Instructor’s mistake. A change of grade will not be allowed after the lapse of one semester. The corrected grade should be processed using the Change of Grade Form.

3. Progress reports on weak students are to be submitted by the Instructor to the Guidance Office, no later than the eighth week of a regular semester, and the third week of a Summer module.

E. REQUIREMENTS FOR DEGREES
Degrees are awarded three times a year, namely: at the end of the Fall semester (February 28), at the end of the Spring semester (June 30), and at the end of the Summer modules (September 30).

Students expecting to graduate must apply for graduation at the Registrar’s Office by the deadlines specified by the Office.

1. Requirements for the Associate Degrees
a. A minimum of 62 credits, the last 30 credits of which must be completed at LAU.

b. Fulfillment of all the required courses in a designated curriculum leading to the A.A. or the A.A.S. Degree.

c. A cumulative GPA of 2.00.

d. A GPA of 2.00 in the Major courses taken at the University, except for the Liberal Arts Program.

e. Students who completed course requirements for graduation but who have not acquired a minimum cumulative GPA of 2.00, and/or a minimum average of 2.00, in their Major courses, are allowed to enroll for a maximum of 15 credit hours, to be completed in no more than one calendar year, starting immediately following the completion of the required credits. Of these 15 credits, only courses numbered 200, and above, will be considered in the cumulative GPA, or the GPA computation. If taken for the first time, courses numbered 100 and above will count. Any student who fails to graduate at the end of that year will be dismissed from LAU.

2. Requirements for the Certificate Program
a. A minimum of 30 credits completed in a designated Program.

b. The credits may be counted within the requirements of another Degree.

c. A cumulative GPA of 2.00 in all the courses attempted in the Certificate Program.

3. Requirements for the Bachelor’s Degrees
a. Holders of the Lebanese Baccalauréate, or any official certificate equivalent to the Lebanese Baccalauréate, who are admitted to the Sophomore class, are required to complete a minimum of 92 credits, excluding Freshman-level and remedial courses (Basic Health and two Physical Education courses may be counted in the 92 credits).

b. Students Graduating with a BA/BS Degree, after obtaining the Baccalauréate II Equivalence: Students entering as Freshmen are to be notified, at the time of their admission, that they need to get the equivalence of the Baccalauréate, after completing 30 credit hours. After obtaining the equivalence, these students will be considered as Sophomore students, and as far as the credit requirements for the Major are concerned, and thus will qualify for the Bachelor Degrees.

c. Credits for Baccalauréate II Equivalence: Credits taken in a semester at the end of which the Baccalauréate II equivalence is granted, and which are in excess of the 30 credits, will be counted within the credits required for the Major. These extra credits should not be of Freshmen level. Freshmen courses taken after the Baccalauréate II Equivalence will not be counted towards graduation.

d. A residency of a minimum of six regular semesters at an institution of higher education, provided that the last two regular semesters, and the last 30 credits, are done at LAU.

e. An LAU student with a Bachelor’s Degree may work for another Bachelor’s Degree, provided he/she completes a minimum of 30 additional credits, including all the requirements for the new Degree. No two B.A. or two B.S. Degrees may be received from the same School. A graduate from outside of LAU may work towards attaining another Bachelor’s Degree, provided he/she completes all the requirements of the new Major, a residency of at least two regular semesters, and at least 30 credits. These students are exempted from the General Requirements, except for English. Special rules may apply to the Professional Schools.

f. Students who hold a Bachelor’s Degree may earn an Associate Degree in another Major, by completing the requirements for that Major.

g. A minimum of 36 credits in a Major plus any additional courses required by the Major.

h. A minimum cumulative GPA of 2.00 is required in all the courses taken at the University. Transfer students will be given credit for all the transferable courses. Only courses taken at LAU will be counted in the students’ GPA.

i. A minimum cumulative GPA of 2.00 in the Major courses is required.

j. For transfer students, 50% of the credits corresponding to the required Major must be completed at LAU.

k. Students expecting to graduate are required to submit an application for graduation one semester prior to the graduation date, according to the deadlines set by the Registrar’s Office.
1. Students who completed their course requirements for graduation, but who have not acquired a minimum cumulative GPA of 2.00, and/or a minimum average of 2.00 in their Major courses, are allowed to enroll for a maximum of 21 credit hours, to be completed in no more than one calendar year, starting immediately following the completion of the required credits. Of these 21 credits, only courses numbered 300 and above will be considered in the cumulative GPA, or GPA, computation. If taken for the first time, courses numbered 200 and above will count. Any such student who fails to graduate, at the end of that year, will be dismissed from LAU.

4. Requirements for a Minor
Students can work for a Minor by completing, with a minimum GPA of 2.00, the Minor requirements. These requirements should be completed before a student earns his/her Bachelor’s Degree. No more than nine credits of transferable courses may be counted towards a Minor.

5. Requirements for the Teaching Diploma
A minimum cumulative GPA of 2.00 must be achieved in the courses required for the Teaching Diploma. The Teaching Diploma is granted upon completion of 21 required credits beyond a BS or a BA Degree. No more than six credits of transferable courses may be counted towards the Teaching Diploma. Education courses counted in granting a Minor in Education may be counted toward the Teaching Diploma, only if it is not counted toward the Bachelor’s degree.

F. ACADEMIC RECOGNITION
1. Students who complete at least 12 credit hours in a semester (not including Summer), with a GPA in the range of 3.20 - 3.49, 3.50 - 3.79, and 3.80 - 4.00, respectively.

2. Degrees are awarded with Honors, Distinction, and High Distinction, with a cumulative GPA in the range of 3.20 - 3.49, 3.50 - 3.79, and 3.80 - 4.00, respectively.

G. ACADEMIC PROBATION
Students are placed on Probation when their work has dropped below satisfactory levels, at any time, irrespective of Incomplete grades, or Withdrawals.

Students taking Intensive English courses are not subject to the normal probation rules. Students may not stay in Intensive English courses more than a total of two semesters and one Summer, after which they leave the University. They can come back only after passing the EEE or TOEFL.

A student on Probation is advised to repeat courses in which he/she received a grade of “F” or “D”, as soon as possible, and may not carry more than 13 credits in a semester.

A student is placed on Probation under one or more of the following conditions:
1. Students will not be placed on Probation until they have 20, or more, credits counted in the cumulative GPA.
2. If, at the end of any academic term, a student does not achieve a minimum cumulative GPA of 2.00 in all the work done at the University, he/she will be placed on Probation.
3. If, after completing 12 credits in his/her Major, a student’s average in the Major courses is less than 2.00, he/she will be placed on Divisional/Departmental Probation, and will be advised to change their Major.

Students who complete at least 12 credit hours in a semester (not including Summer), with a GPA in the range of 3.20 - 3.49, 3.50 - 3.79, and 3.80 - 4.00, respectively.

XI. READMISSION AFTER SUSPENSION
A student suspended for academic deficiencies must petition the Admissions Council for readmission. The petition is submitted at the Registrar’s Office. Readmission is not automatic. Each case will be studied on its own merit. If during the student’s absence from LAU, he/she attended another college or university, he/she has to submit a transcript of grades from that college or university.

Students readmitted, after suspension, will be placed on probation, and be given two semesters, excluding Summers, to remove the probation. If they fail to remove the probation they will be dismissed.

Suspended LAU students may not receive credit for any academic work done during the absence period, if such work has not been declared prior to re-enrollment.

Students suspended for academic deficiencies may petition the University Admissions Council for readmission if at least one of the following conditions is met:
a. The student has spent at least one semester at another institution of higher learning recognized by LAU, and completed a minimum of 12 credits, with an average of C, or higher. Students are urged to seek advice from the Registrar’s Office about institutions whose credits may be transferred to LAU.
b. The student has spent one full calendar year outside LAU engaged in activities that may improve his/her chances of academic success.
c. The student has passed the Special Program of remedial courses, at the Continuing Education Program.

Students reaching suspension with a cumulative GPA of less than 1.20 will not be re-admitted, and are dismissed.

Students who have been suspended twice, will not be re-admitted, and will be dismissed. However, a dismissed LAU student may apply for reentry after three years of academic work in another university whose credits may be transferred to LAU, or seven years of work experience. Each case will be studied individually.
ADMISSION TO GRADUATE PROGRAMS

Application forms are available at the Admissions Office, and can be mailed to applicants, upon request. They can also be downloaded from the LAU Website at: http://www.lau.edu.lb.

REQUIREMENTS FOR ADMISSION

Applicants must submit the following items:

a. An application form.
b. An Official Transcript of grades, to be sent directly to the Admissions Office. Failure to declare attendance in other institutions could result in an invalidation of admission, and any credits or degrees earned.
c. Originals of all the educational, and professional, certificates.
d. Recommendations from two professors who are familiar with the applicant’s academic performance. In the case of work experience, a certificate of employment should also be supplied.
e. Official scores of the Test Of English as a Foreign Language (TOEFL), if taken.
f. Official scores of the Graduate Management Admission Test (GMAT), if taken.
g. A photocopy of the Identity Card or Passport (use the same nationality to be used in the registration).
h. Two recent, passport-size, color photographs.
i. A non-refundable fee of $50 (L.L.75,000).

N.B.

Applications for admission must hold a Bachelor’s Degree, from a recognized college or university, with a minimum Grade Point Average (GPA) equivalent to 2.75, on a 4-point scale, and a GPA of 2.75, in the Major courses of the Major to be pursued.

If the Bachelor’s Degree is not in the field to be pursued, and the cumulative GPA is less than 2.75, but equal to, or greater than, 2.5, then the applicant may be accepted as a Special Graduate. He/She will be reconsidered for admission into the Master’s Program after the completion of a number of courses, specified by the Department, or School, with a minimum cumulative GPA of 3.00, and without any repeats.

TRANSFER OF CREDITS

A maximum of six Graduate credits, for 30-credit programs, and a maximum of nine Graduate credits, for 39-credit programs, may be transferred from another LAU-recognized institution, or between LAU Graduate Programs.

Except where otherwise specified, a maximum of six Graduate credits, taken as an Undergraduate at LAU, in the student’s last year, over and above the total number of credits required for graduation, may be transferred. Transferred credits apply only to courses with a grade of “B” or above. Transferred credits should not have been used for another degree that is required for admission to the Program in which a student is enrolled.

ADMISSION TO GRADUATE PROGRAMS

Applicants to the Executive Master of Business Administration (EMBA) must have a Bachelor’s Degree from an LAU-recognized college or university, and at least six years of professional experience.

DOCTOR OF PHARMACY

Applicants to the Doctor of Pharmacy (Pharm. D.) Program should hold a Bachelor of Pharmacy Degree from an Accreditation Council for Pharmacy Education-accredited college or university. All applicants are subject to a personal interview by the School’s Admissions Committee.

SPECIAL GRADUATE

If the Bachelor’s Degree of the applicant is not in the field to be pursued, but his/her cumulative GPA is 2.75 and above, then the applicant may be accepted, as a Special Graduate, and will be required to take remedial courses in the Major. Such students must complete all course requirements, specified by the relevant academic program, with a minimum GPA of 2.75, before they are considered bona-fide students in the Master’s Program.

ENGLISH PROFICIENCY REQUIREMENTS

Since English is the language of instruction at LAU, applicants must show proficiency in the English Language. This may be determined in one of the following ways:

a. A pass on the English Entrance Exam (EEE) administered at LAU, with a minimum score of 550.
b. A minimum score of 233, computer-based, or 575, paper-based, in the TOEFL, or its equivalent in the internet-based TOEFL.
c. Applicants with EEE scores between 500 and 549, or its equivalent in the TOEFL, have to register for ENG009 Remedial English, a three non-credit course, or retake the English test, within the first year of enrolment.
d. Applicants with EEE scores below 500, or its equivalent in the TOEFL, will not be accepted in the Graduate Programs.

ADMISSION TO THE GRADUATE PROGRAMS

Applicants for admission must hold a Bachelor’s Degree, from a recognized college or university, with a minimum Grade Point Average (GPA) equivalent to 2.75, on a 4-point scale, and a GPA of 2.75, in the Major courses of the Major to be pursued.

Applicants with a cumulative GPA of less than 2.75, but with at least five years of relevant professional experience, and/or a high GPA in the Major courses, may also be considered for admission. If the Bachelor’s Degree is not in the field to be pursued, the applicant may be admitted as “Special”, as described in the following sections.

Applicants to Comparative Literature must have a Bachelor’s Degree in a field of literary studies, or have earned a Bachelor’s Degree in another discipline, with at least 18 credits of course work in literature from an accredited university. A minimum score of 600 in the TOEFL, and a GPA of 3.00, on a 4-point scale, in literature, and 2.75, in all other subjects, are required. A brief statement of the purpose, written in English, as well as two essays on a literary subject, one of which is written in English, and the other in the candidate’s second language, should be submitted when applying.

An interview with the Graduate Admissions Council of the concerned School may, at times, be required.

Students accepted in the MBA Program are required to sit for the GMAT prior to completing 18 credit hours. However, students are encouraged to sit for the test before applying to the MBA Program, as GMAT scores will be positively considered for admission and financial assistance.

PROBATIONARY ADMISSION

The Graduate Admissions Council may accept some applicants not meeting all the requirements for admission, on a probation basis. Applicants accepted on probationary basis must complete the first four courses, without any repeats, with a minimum GPA of 3.00.

G.P.A REQUIREMENTS

Students accepted in the MBA Program are required to sit for the test before applying to the MBA Program, as GMAT scores will be positively considered for admission and financial assistance.
ACADEMIC RULES AND PROCEDURES FOR GRADUATE PROGRAMS

I. REGISTRATION

1.1. REGISTRATION
Registration is required of all students, in accordance with the posted procedures and regulations. Late registration requires payment of an additional Late Registration Fee. Students will not be permitted to register after the late registration period.

1.2. ADVISING
Upon registration, each student will be assigned an Academic Advisor who will assist him/her in planning an appropriate course of study. At a later date, students choosing to undertake a Project or a Thesis will be assigned a Research Advisor.

1.3. COURSE LOAD
The minimum course load for a full-time student is nine credit hours per semester, and the maximum is 12 credit hours. Graduate Students with full, or part-time, employment are advised to take a reduced load.

Students on Graduate Assistantship shall take a minimum of six credits, and a maximum of nine credits, in the Fall or Spring semesters, and a maximum of three credits, in a five week Summer session, or six credits, in an eight week Summer session. However, Graduate Assistants may take up to 12 credits, provided that these credits include no more than nine credits of regular coursework (excluding Thesis/Project), for full-time students, and no more than six credits, for part-time students.

1.4. CROSS-REGISTRATION
A student may request permission to cross-register at another institution recognized by LAU, if a course needed for the student’s graduation is not offered at the University. Any Graduate Student registered at LAU may take no more than one such course, which has to be preapproved by the Division/Department concerned.

1.5. INDEPENDENT STUDY
To meet degree requirements, a student may take no more than one course as an Independent Study in the last term of the student’s Graduate Program. A student may register for an Independent Study course only with the prior consent of the Department/Division/School concerned.

1.6. AUDITING
Only candidates who have satisfied all the admission requirements may audit Graduate courses. Auditing will only be permitted when places are available. Audited courses will not, however, be counted for graduation.

1.7. PROGRAM CHANGES
Any change from one Graduate Degree to another requires submission of a new application.

1.8. ATTENDANCE REGULATIONS
Regular attendance is required of all Graduate Students. No credit will be given to a student who misses more than one-third of class hours, for any reason. A grade of “F” will be recorded, unless the student follows the official withdrawal procedure.

1.9. COURSE CHANGES AFTER REGISTRATION
Course changes after registration are permitted, subject to the following provisions:

1. To add, or drop, a course, the student must obtain a “Change of Schedule” form from the Registrar’s Office, and must secure the signatures of the concerned Advisor, the Business Office, and the Registrar’s Office. A Change of Schedule may be made during the Drop and Add period.

II. ACADEMIC RULES AND PROCEDURES

2.1. GRADING SYSTEM
The University Grading System uses a series of letters to which grade quality points are assigned. The Grade Point Average (GPA) is calculated according to a procedure outlined in the following section.

Grade | Quality Points
---|---
A | 4
A- | 3.67
A+ | 3.33
B | 3
B+ | 2.67
B+ | 2.33
C | 2
C+ | 1.67
D | 1.33
D+ | 1
F | 0
P | Pass*
NP | No Pass*
U | Audit*
W | Withdrawal*
I | Incomplete*

*Not computed in the Grade Point Average (GPA)

- Grade A indicates work of excellent quality. It is valued at four quality points per credit hour.
- Grade B indicates work of good quality. It is valued at three quality points per credit hour.
- Grade C indicates work of unsatisfactory quality. It is valued at two quality points per credit hour.
- Grade D indicates work of poor quality. It is valued at one quality point per credit hour.
- Grade F indicates work of unacceptable quality. It has zero quality points.
- Grade NP indicates that the student has failed to pass the oral examination of the Thesis/Project course.
- Grade W indicates an official withdrawal from a course, after the Late Registration Period.
- Grade I indicates that essential requirements have been delayed, due to factors beyond the student’s control. These requirements must be met, and another grade issued, no later than one year after the completion of the semesters for which the Grade I was recorded. Failure to make up the incomplete work, within the specified grace period, will result in a grade of F.

2.2. ACADEMIC STANDING
A Graduate student is considered to be in good academic standing if he/she maintains a cumulative GPA of 3.00, on all the course work undertaken while in the Graduate Program.
ACADEMIC RULES AND PROCEDURES FOR GRADUATE PROGRAMS

2.3. ACADEMIC PROBATION AND DISMISSAL

1. After the completion of nine credit hours, students will be placed on probation, if their cumulative GPA is below 3.00. Students who complete nine additional credit hours, (excluding repeated courses) and fail to achieve a cumulative GPA of 3.00 will be dismissed from the Program.

2. Students failing to maintain a cumulative GPA of 3.00, even after removing an earlier probation, will be dismissed from the Program.

3. Any student, who has, at any time, two repeats and more than two grades of “C”, or lower, will be dismissed from the Program.

4. Any student who has more than one “F” will be dismissed from the Program.

2.4. TRANSFER OF CREDITS

A maximum of six Graduate credits, for 30 credit-hour Programs, and a maximum of nine credits, for 39 credit-hour Programs, may be transferred from another LAU recognized institution, or between LAU Graduate Programs.

Except where otherwise specified, a maximum of six graduate credits taken as an Undergraduate at LAU, in the student’s last year, over and above the total number of credits required for graduation, may be transferred. Transferred credits apply only to courses with a grade of “B” or above. Transferred credits should not have been used for another degree required for admission to the Graduate Program in which a student is enrolled. A request for the transfer of credits shall be filed at the Registrar’s Office, during the student’s first semester of residence. The petition shall be reviewed by the Department/Division/School concerned, and the decision communicated to the Registrar’s Office, and the Department/Division/School.

2.5. COURSE SUBSTITUTION

Up to six credits of courses may be substituted for an equal number of credits, if the substituted courses are at a level equivalent to the courses for which the substitution is requested. A petition for approval of such a substitution shall be submitted to the Registrar’s Office. The petition shall be reviewed by the Department/Division/School concerned, and the decision communicated to the Registrar’s Office.

2.6. REPETITION OF COURSES

1. During the course of study, in any of the Graduate Programs, a student can repeat a maximum of two Graduate Courses in which a grade of “B” or less, has been earned. In such a case, only in the first repeated course, the higher grade will be counted in the determination of the GPA.

2. Students will not be allowed to withdraw from a course more than once. The second withdrawal from a course will be recorded as a grade of “F”.

2.7. REFUND POLICY

Contracts with faculty members, and provisions for education and residence, are made by the University, in advance, for the entire year. Accordingly, if a student withdraws, for justifiable reasons, after reserving courses, then the refund of tuition, and the housing fee, will be according to the following percentages:

1. A drop during, or before, the Drop and Add period: 100% of the fees will be refunded.
2. A drop after the Drop and Add period: No refund will be given.

2.8. WITHDRAWAL FROM THE UNIVERSITY

Students who wish to withdraw from the University, either temporarily or permanently, must fill out the appropriate form at the Registrar’s Office, and secure the signature of the Advisor, the Business Office, and the Registrar’s Office. Students who withdraw from the University after the Late Registration Period, and before the withdrawal deadline (5 class days before the end of the semester), will receive a grade of “W” for all the courses in progress.

2.9. TIME LIMIT

Students must complete all the requirements for a Master’s Degree, including the accepted transferred credits, within six years, as of the end of the first semester. Students who exceed this time limit must have their Program revalidated, for one time only. Revalidating the Program implies either taking additional courses, or revalidating outdated courses.

To revalidate a Program, the student, along with the Faculty Advisor, must prepare a Revalidation Plan, which must be reviewed, and approved, by the School Academic Council. Once the Plan has been completed, the Dean of Graduate Studies and Research or the Dean of the School concerned, and the Registrar, must be notified in writing.

2.10 POLICY ON ACADEMIC DISHONESTY

1. Plagiarism

Plagiarism is defined as the use of someone else’s ideas, words, or work, as if it were one’s own, without clearly acknowledging the source of that information. Examples of plagiarism include:

- Submitting research work (a report, project, thesis, etc.) written by someone else, and claiming that it is the student’s work.
- Paraphrasing another person’s words, without citing the source.
- Including material (e.g. written work, figures, tables, charts, graphs, computer programs, etc.) in one’s work, without acknowledging its source.

Plagiarism is a serious academic offense, subject to disciplinary action by the faculty, and/or the Academic Council concerned. The severity of the disciplinary action is determined according to the extent of the plagiaristic act. The disciplinary action could range from re-submitting the work with penalties, to dismissal from the Program.

At the request of the faculty, the Dean of Graduate Studies and Research or the Dean of the School, shall issue a written warning. A copy of the warning will be kept at the Registrar’s Office.

2. Cheating

Cheating on tests, and falsification and forging of research material and data, are academic offenses, subject to disciplinary action. Students caught cheating on an exam receive a score of zero on the exam, in their first cheating attempt in the course, and receive a warning from the Division/School concerned, at the request of the faculty.

Students caught cheating for the second time, in the same course, will receive a grade of “F” in the course, and a second warning. A score of zero on an exam, resulting from cheating, must be counted in the student’s course grade.

Falsification and forging of research material and data will lead to penalties ranging from re-submitting the work with a penalty, to dismissal from the Program.
A no change.

ACADEMIC RULES AND PROCEDURES FOR GRADUATE PROGRAMS

2.11. THESIS AND PROJECT

1. Thesis

The Thesis shall be based on original research work carried out in the basic, and /or applied, field of study.

2. Project

The Project shall be based on substantial applied work, involving, for example, critical literature review, and experimental or analytical studies dealing with the application of recent, or significant, techniques or tools, development of kits/systems, empirical testing of theories, etc...

3. Registration

Students may register for the Thesis or Project, at any time, after being registered for 12 credits, subject to the consent of their Thesis or Project Advisor. Theses must be completed within 2 years of the first registration, and Projects within 3 semesters, excluding Summer.

Registration for a Thesis or Project will allow students to retain their status with the University for 2 years, or 3 semesters, respectively, with no additional tuition fees. To maintain access to the University facilities, students must re-register for the Thesis or Project (for zero credits; and no fees). Past the 2 years for Theses, or the 3 semesters for Projects, students allowed to have a Thesis or a Project extension, by the University Graduate Council (UGC), will be required to register for a Residence Fee (0 quality point), and to pay for 50% of one Graduate credit, per semester.

4. Guidelines

A. A student selects a Thesis or Project Advisor, and a topic. In consultation with this Advisor, students also select the other member(s) of a Graduate Advisory Committee to guide their work on the chosen topic. Students are expected to make these selections soon after registering in the Thesis or Project.

B. In addition to the Advisor, the Thesis Committee shall be made up of a minimum of two members, and the Project Committee of a minimum of one member. The majority of the Thesis Committee members must be full-time LAU Faculty of the Graduate Program concerned. The Advisor, who should be a full-time LAU faculty, shall chair the Committee. This Advisor shall communicate the names of the members of the Thesis Committee to the Department/Division/ School concerned, which will be approved by the Dean of Graduate Studies and Research or the Dean of the School concerned.

C. Students must successfully defend their Thesis proposal in front of the members of their Thesis Advisory Committee, normally within the first semester in which they register for the Thesis. The results of the Proposal Defense, along with any specific instructions, shall then be communicated by the student’s Advisor to the Office of the Dean of Graduate Studies and Research or the Dean of the School concerned, and the Graduate Student concerned, using the Thesis Proposal Form. The Form shall be certified by all the members of the Committee.

D. The members of the Committee shall be kept informed of the progress of the Thesis or Project.

E. The grade for a Thesis or Project can be a Pass, or a No Pass (P or NP). The grade does not contribute to the GPA.

F. Before their defense, students can petition to change registration from a Thesis to a Project, or vice versa.

1. Students changing from a Project to a Thesis option will be required to pay, only, for the extra credits, provided that the student remains with the same Thesis Advisor. The change shall be made at least one semester before graduation, and shall carry the approval of the University Graduate Council (UGC).

2. Students changing from a Thesis to a Project will not be refunded for the difference in credits. The change shall be made at least one semester before graduation, and shall carry the approval of the UGC.

3. Students changing from a Thesis or a Project to one or two courses (s) are required to pay for the substituted courses.

5. Conflict of Interest

The Faculty shall not serve on the Thesis or Project Advisory Committee, or be the Advisor of a student that either is a family member or a business partner.

In such cases where the academic circumstances require that a Faculty member serve on the Thesis or Project Advisory Committee, or be the Thesis or Project Advisor of a student that is either a family member or a business partner, the Faculty shall secure the prior written approval of the Dean of Graduate Studies and Research or the Dean of the School concerned.

2.12 PROCEDURE FOR THESIS AND PROJECT DEFENSE

1. Thesis Defense

The student shall submit his/her Thesis to the Thesis Committee members, and the Dean of Graduate Studies and Research or the Dean of the School concerned, at least two weeks before the Defense date.

The date of the public Defense will be publicly announced by the concerned School Dean, at least two weeks in advance.

The Thesis Defense session shall start by the candidate giving a public presentation. This will be followed by a closed meeting with the Thesis Committee for the final Defense. The Thesis Committee will deliberate, in private, in the absence of the candidate, before reaching a final decision.

The result of the Defense is reported on the Thesis Defense Form. The Form is preliminarily signed by the Advisor, and all the members of the Committee. The Form specifies corrections and changes to the Thesis requested by the Committee. The student shall deliver the corrected and/or changed Thesis to the Advisor within a period, to be specified by the Committee, which shall not exceed one term. The Advisor must verify that the Thesis fulfills the requirements of the Thesis Committee, including all the requested changes, and corrections. The Form is then submitted to Dean of Graduate Studies and Research, or the Dean of the School concerned, who is responsible for checking that the Thesis fulfills all the requirements.

2. Project Presentation

Each Department/Division/School will set its own guidelines for the Project presentation.

2.13 PREPARATION AND SUBMISSION OF THESIS AND PROJECT

Theses and Projects shall be written in accordance with the specified ‘Thesis and Project Format Guidelines’, available at the Office of the Dean of Graduate Studies and Research, or the School Dean.

Thesis:

The candidate must provide the Library with the final version of the Thesis, for format verification, and binding, at least one week prior to the deadline for submission of all grades. The final version shall include, immediately after the cover page, a completed and signed Thesis Approval Form. The librarian shall verify the Thesis compliance, with the format specified in the “Format Guidelines.” The librarian shall then fill and sign the Library Clearance Form, and send it to the Registrar for initiation of the graduation procedures. The student is also required to submit two copies of the final version of the Thesis to the Office of Graduate Studies/School Dean. The Registrar shall not register the grade for a Thesis until he/she obtains copies of both the Thesis Approval Form, and the Library Clearance Form.

1. Spouse, parents, children, siblings, siblings of parents, first cousins and any person related to one of these individuals by marriage, or any other relation, who resides in the same household with the Faculty member.

2. One in which the Faculty member, or a member of their family, serves as an officer, director, partner, trustee, owner or controlling stockholder of an organization related to the student.

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The selection of Graduate Assistants is guided by the following criteria and considerations:
- The student must be in good academic standing.
- The student must not be a Special Undergraduate, or on Probation.
- The student’s interests, and skills, must fit the departmental needs for teaching, research, or other duties.
- The allocated budget shall be respected.

To renew a Graduate Assistantship, a student must be in good academic standing, and must have performed the assigned duties, satisfactorily, in the preceding semesters, as determined by a positive evaluation of the supervising Faculty. Evaluation is performed every semester using a Divisional/School Form.
GENERAL UNIVERSITY REQUIREMENTS

FRESHMAN REQUIREMENTS

FRESHMAN ARTS REQUIREMENTS (30 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHL101</td>
<td>Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>ENG101</td>
<td>English I</td>
<td>3</td>
</tr>
<tr>
<td>ARA101</td>
<td>Arabic Essay Reading and Writing I</td>
<td>3</td>
</tr>
<tr>
<td>ART101</td>
<td>Introduction to Music and Art</td>
<td>3</td>
</tr>
<tr>
<td>ENG102</td>
<td>English II</td>
<td>3</td>
</tr>
<tr>
<td>ARA102</td>
<td>Arabic Essay Reading and Writing II</td>
<td>3</td>
</tr>
</tbody>
</table>

Any two of the following Science courses (8 credits) or one of the following, and one Math course (7 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO101</td>
<td>Introduction to Biological Science</td>
<td>4</td>
</tr>
<tr>
<td>PHY101</td>
<td>Introduction to Physical Science</td>
<td>4</td>
</tr>
<tr>
<td>BIO201</td>
<td>Biology I</td>
<td>4</td>
</tr>
<tr>
<td>BIO202</td>
<td>Biology II</td>
<td>4</td>
</tr>
<tr>
<td>CHM101</td>
<td>General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>PHY111</td>
<td>Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>PHY201</td>
<td>Electricity and Magnetism</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives 4 or 5

FRESHMAN SCIENCE REQUIREMENTS (32 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CHM101</td>
<td>General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>MTH101</td>
<td>Calculus</td>
<td>3</td>
</tr>
<tr>
<td>PHL101</td>
<td>Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>ENG101</td>
<td>English I</td>
<td>3</td>
</tr>
<tr>
<td>ARA101</td>
<td>Arabic Essay Reading and Writing I</td>
<td>3</td>
</tr>
<tr>
<td>MTH102</td>
<td>Calculus</td>
<td>3</td>
</tr>
<tr>
<td>PHY111</td>
<td>Mechanics</td>
<td>4</td>
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<tr>
<td>ART101</td>
<td>Introduction to Music and Art</td>
<td>3</td>
</tr>
<tr>
<td>ENG102</td>
<td>English II</td>
<td>3</td>
</tr>
<tr>
<td>ARA102</td>
<td>Arabic Essay Reading and Writing II</td>
<td>3</td>
</tr>
</tbody>
</table>

Three Social Science courses1 9

GENERAL UNIVERSITY REQUIREMENTS (for continuing students)

The General University Requirements are a balanced set of courses in general education for students pursuing Bachelor’s Degrees. Some courses are for Freshmen and are not required of entering Sophomores. Transfer students must fulfill the course requirements, on every level, unless they receive credits for similar courses completed at their former institution.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STA202</td>
<td>Applied Statistics3</td>
<td>3</td>
</tr>
<tr>
<td>HLT201</td>
<td>Basic Health</td>
<td>1</td>
</tr>
<tr>
<td>PED2xx</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>CSC201</td>
<td>Computer Applications 1.4</td>
<td>1</td>
</tr>
<tr>
<td>CST201</td>
<td>Cultural Studies I</td>
<td>3</td>
</tr>
<tr>
<td>CST202</td>
<td>Cultural Studies II</td>
<td>3</td>
</tr>
<tr>
<td>CST301</td>
<td>Cultural Studies III</td>
<td>3</td>
</tr>
<tr>
<td>ENG202</td>
<td>Sophomore Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>ENG203</td>
<td>Fundamentals of Oral Communication 3</td>
<td>3</td>
</tr>
<tr>
<td>ARA201</td>
<td>Appreciation of Arabic Literature 2</td>
<td>3</td>
</tr>
</tbody>
</table>

Three Social Science courses1

LIBERAL ARTS CURRICULUM (for new students)

The General University Requirements have been revised, and the new Liberal Arts Curriculum will replace the old General University Requirements, as of the Academic Year 2007 – 2008. Students admitted prior to the Fall 2007 semester will continue to follow the old General University Requirements listed above.

LIBERAL ARTS CURRICULUM OBJECTIVES

Students will acquire the tools, and ethos, of independent learning and thought, through a program which embodies the institutions’ definition of an educated person. To achieve this, the Liberal Arts curriculum consists of a substantial number of courses providing breadth and depth, flexibility and choice, and coherence as well as a balance between the major domains of knowledge.

GENERAL UNIVERSITY REQUIREMENTS

LEARNING OUTCOMES

After completing the Liberal Arts Curriculum, the student should demonstrate the following:

- Competence in written and oral communication in English.
- The ability for scientific and quantitative reasoning.
- Critical analysis and logical thinking.
- Capability for continuing education.
- Skills for information literacy.
- Knowledge and understanding of scientific, historical, and social phenomena.
- Knowledge and appreciation of the aesthetic, and ethical, dimensions of humankind.

Fixed Core (13 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG202</td>
<td>Sophomore Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>ENG203</td>
<td>Fundamentals of Oral Communication 3</td>
<td>3</td>
</tr>
<tr>
<td>CSC201</td>
<td>Computer Applications 1.4</td>
<td>1</td>
</tr>
<tr>
<td>HLT201</td>
<td>Basic Health</td>
<td>1</td>
</tr>
<tr>
<td>PED2-</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>ETH201</td>
<td>Ethics</td>
<td>1</td>
</tr>
</tbody>
</table>

OTHER REQUIREMENTS

Arts (minimum of 3 credits, and a maximum of 6 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART331</td>
<td>History of Art I</td>
<td></td>
</tr>
<tr>
<td>ART335</td>
<td>Islamic Art of the Middle East</td>
<td></td>
</tr>
<tr>
<td>ART431</td>
<td>Modern Art</td>
<td></td>
</tr>
<tr>
<td>COM210</td>
<td>Communication Media and Society</td>
<td></td>
</tr>
<tr>
<td>COM225</td>
<td>The Art of Film</td>
<td></td>
</tr>
<tr>
<td>COM242</td>
<td>Introduction to the Art of Theatre</td>
<td></td>
</tr>
<tr>
<td>COM249</td>
<td>Theatre in Lebanon and the Arab World</td>
<td></td>
</tr>
<tr>
<td>COM345</td>
<td>Modern Drama</td>
<td></td>
</tr>
<tr>
<td>WOS412</td>
<td>Representations of Women in the Arts &amp; the Media</td>
<td></td>
</tr>
<tr>
<td>DES361</td>
<td>Theory I</td>
<td></td>
</tr>
<tr>
<td>DES371</td>
<td>History of Architecture I</td>
<td></td>
</tr>
<tr>
<td>DES372</td>
<td>History of Architecture II</td>
<td></td>
</tr>
<tr>
<td>GRA431</td>
<td>History of Graphic Design</td>
<td></td>
</tr>
<tr>
<td>GRA432</td>
<td>Visual Perception</td>
<td></td>
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<tr>
<td>MUS311</td>
<td>Survey of Western Music</td>
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</tr>
<tr>
<td>MUS312</td>
<td>Survey of Middle Eastern Music</td>
<td></td>
</tr>
</tbody>
</table>

Literature (minimum of 3 credits, and a maximum of 6 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG211</td>
<td>Literature I</td>
<td></td>
</tr>
<tr>
<td>ENG212</td>
<td>Literature II</td>
<td></td>
</tr>
<tr>
<td>ENG311</td>
<td>Literature &amp; Society</td>
<td></td>
</tr>
<tr>
<td>ENG312</td>
<td>Poetry</td>
<td></td>
</tr>
<tr>
<td>ENG313</td>
<td>Forms &amp; Modes (Repeatable for credit, if content is different)</td>
<td></td>
</tr>
<tr>
<td>ENG314</td>
<td>Shakespeare</td>
<td></td>
</tr>
<tr>
<td>ENG315</td>
<td>20th Century English &amp; American Novel</td>
<td></td>
</tr>
<tr>
<td>ENG316</td>
<td>Literary Periods (Repeatable for credit, if content is different)</td>
<td></td>
</tr>
<tr>
<td>ENG317</td>
<td>English Novel before the 20th Century</td>
<td></td>
</tr>
<tr>
<td>ENG318</td>
<td>Drama (other than Shakespeare)</td>
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</tr>
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</table>
## GENERAL UNIVERSITY REQUIREMENTS

### PHILOSOPHY, RELIGION, and HISTORY

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>PHL210</td>
<td>Critical and Creative Thinking</td>
</tr>
<tr>
<td>PHL201</td>
<td>Ancient Philosophy: From the pre-Socratics to the Epicureans and the Stoics</td>
</tr>
<tr>
<td>PHL202</td>
<td>Medieval Philosophy: From Plotinus to Ockham</td>
</tr>
<tr>
<td>PHL203</td>
<td>Early Modern Philosophy: From Montaigne to Kant</td>
</tr>
<tr>
<td>PHL204</td>
<td>Modern Philosophy: From Hegel to Heidegger</td>
</tr>
<tr>
<td>PHL301</td>
<td>Ethics</td>
</tr>
<tr>
<td>PHL302</td>
<td>Theory of Knowledge</td>
</tr>
<tr>
<td>PHL303</td>
<td>Metaphysics</td>
</tr>
<tr>
<td>PHL311</td>
<td>Philosophy of Religion</td>
</tr>
<tr>
<td>PHL321</td>
<td>Philosophy of Art</td>
</tr>
<tr>
<td>PHL322</td>
<td>Existentialism in Literature</td>
</tr>
<tr>
<td>PHL323</td>
<td>Philosophy of History</td>
</tr>
<tr>
<td>PHL324</td>
<td>Philosophy of Science</td>
</tr>
<tr>
<td>PHL325</td>
<td>Philosophy of Mind</td>
</tr>
<tr>
<td>PHL326</td>
<td>Social and Political Philosophy</td>
</tr>
<tr>
<td>PHL327</td>
<td>Philosophy and Mythology (currently exists as REL411 Myth and Ritual)</td>
</tr>
<tr>
<td>PHL328</td>
<td>Arab and Islamic Philosophy</td>
</tr>
<tr>
<td>PHL390/4</td>
<td>Special Topics</td>
</tr>
<tr>
<td>HST201</td>
<td>Historical Tools</td>
</tr>
<tr>
<td>HST210/211</td>
<td>Ancient History</td>
</tr>
<tr>
<td>HST221</td>
<td>History of Lebanon</td>
</tr>
<tr>
<td>HST230/231</td>
<td>Arab and Islamic History</td>
</tr>
<tr>
<td>HST301/305</td>
<td>European History</td>
</tr>
<tr>
<td>REL201</td>
<td>The Beginning of the World’s Religions</td>
</tr>
<tr>
<td>REL/PHL202</td>
<td>The Fervent Faith and Ardent Reason</td>
</tr>
<tr>
<td>REL301</td>
<td>Individuals and Masses Doubt</td>
</tr>
<tr>
<td>REL302</td>
<td>Special Topics in religion</td>
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<tr>
<td>REL312</td>
<td>Interpretation of Religious Literature</td>
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<tr>
<td>REL411</td>
<td>Myth and Ritual (appears as PHL327 above)</td>
</tr>
<tr>
<td>REL412</td>
<td>History of Religious Thought in the Middle East</td>
</tr>
<tr>
<td>REL413</td>
<td>Representatives of Christian Thought in the Modern Period</td>
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<tr>
<td>REL414</td>
<td>Representatives of Islamic Thought in the Modern Period</td>
</tr>
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<td>CST201</td>
<td>Cultural Studies I</td>
</tr>
<tr>
<td>CST202</td>
<td>Cultural Studies II</td>
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<td>CST301</td>
<td>Cultural Studies III</td>
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### SCIENCES

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>BIO201</td>
<td>General Biology I</td>
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<tr>
<td>BIO202</td>
<td>General Biology II</td>
</tr>
<tr>
<td>CHM201</td>
<td>Chemical Principles</td>
</tr>
<tr>
<td>CHM202</td>
<td>Analytical Chemistry</td>
</tr>
<tr>
<td>CHM203</td>
<td>Qualitative Analysis</td>
</tr>
<tr>
<td>CHM204</td>
<td>Quantitative Analysis</td>
</tr>
<tr>
<td>NUT201</td>
<td>Fundamentals of Human Nutrition</td>
</tr>
<tr>
<td>MTH201</td>
<td>Calculus III</td>
</tr>
<tr>
<td>MTH206</td>
<td>Calculus IV</td>
</tr>
<tr>
<td>MTH207</td>
<td>Discrete Structures</td>
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<tr>
<td>CSC241</td>
<td>Introduction to Computing</td>
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### SOCIAL SCIENCES

<table>
<thead>
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<tbody>
<tr>
<td>PSY201</td>
<td>Introduction to Psychology</td>
</tr>
<tr>
<td>PSY202</td>
<td>Child Psychology</td>
</tr>
<tr>
<td>PSY335</td>
<td>Consumer’s Psychology</td>
</tr>
<tr>
<td>SOC201</td>
<td>Introduction to Sociology</td>
</tr>
<tr>
<td>SOC215</td>
<td>Introduction to Gender Studies</td>
</tr>
<tr>
<td>SOC311</td>
<td>Social Problems</td>
</tr>
<tr>
<td>SOC321</td>
<td>Sociology of the Arab World</td>
</tr>
<tr>
<td>WOS311</td>
<td>Issues and Debates in Feminist Theory</td>
</tr>
<tr>
<td>WOS313</td>
<td>Women in the Arab World: Sociological Perspectives</td>
</tr>
<tr>
<td>WOS412</td>
<td>Representations of Women in the Arts and the Media</td>
</tr>
<tr>
<td>POL201</td>
<td>Introduction to Political Science</td>
</tr>
<tr>
<td>POL231</td>
<td>Introduction to Human Rights</td>
</tr>
<tr>
<td>PIE201</td>
<td>Cross-Cultural Communication for Peace</td>
</tr>
<tr>
<td>ECO201</td>
<td>Microeconomics</td>
</tr>
<tr>
<td>ECO202</td>
<td>Macroeconomics</td>
</tr>
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</table>

**Total Liberal Arts Curriculum Requirements 34**

### GENERAL UNIVERSITY REQUIREMENTS

**Notes:**

1. **a.** Entering Freshman students with scores between 500 and 549 on the Entrance English Exam (EEE), or its equivalent on the Test Of English as a Foreign Language (TOEFL), must take ENG009 Remedial English (valued at three non-credits), ENG101 English I (worth three credits), and ENG102 English II (worth three credits), before taking the Sophomore level English courses.

2. **b.** Entering Freshman students with scores between 550 and 599 on the EEE, or its equivalent on the TOEFL, must take ENG101 English I (worth three credits), and ENG102 English II (worth three credits), before taking the Sophomore level English courses.

3. **c.** Entering Freshman students with scores between 600 and 649 on the EEE, or its equivalent on the TOEFL, if enrolled in a BA/BS Program, must take ENG102 English II (worth three credits), before taking the Sophomore level English courses. They must also take three elective credits to make up for the missing credits. If the students are enrolled in an AA/AAS Program, they must take ENG102 English II (worth three credits), and either ENG202 Sophomore Rhetoric, or ENG203 Fundamentals of Oral Communication.

4. **d.** Entering Freshman students with scores of 650 and above on the EEE, or its equivalent on the TOEFL, if enrolled in a BA/BS Program, can take Sophomore level English courses directly. They must also take six elective credits to make up for missing credits. If the students are enrolled in an AA/AAS Program, they must take ENG202 Sophomore Rhetoric, and ENG203 Fundamentals of Oral Communication.

5. **e.** To satisfy Sophomore Arabic Requirements, students must take: SAR221 Developmental Arabic, or any Sophomore level course related to the Middle East.

6. **f.** To satisfy Sophomore Philosophy Requirements, students must take: PHIL321 Philosophy of Art, PHIL322 Existentialism in Literature, PHIL323 Philosophy of History, PHIL324 Philosophy of Science, PHIL325 Philosophy of Mind, PHIL326 Social and Political Philosophy, PHIL327 Philosophy and Mythology (currently exists as REL411 Myth and Ritual) or any Sophomore level course related to the Middle East.

7. **g.** A requirement only for some of the academic programs.

8. **h.** Not counted towards graduation for students who are required to take higher-level Computer Science courses.

9. **i.** These Social Science courses are specified in some programs.

**Notes:**

- To satisfy Sophomore Arabic Requirements, students must take: SAR221 Developmental Arabic, or any Sophomore level course related to the Middle East.

- A requirement only for some of the academic programs.

- Not counted towards graduation for students who are required to take higher-level Computer Science courses.

- These Social Science courses are specified in some programs.
### COURSE NUMBERS

#### NUMBERS PRECEDING COURSE TITLES
The course prefix is a three-letter designator for an academic discipline, subject matter, and/or sub-category of knowledge. The first digit next to the abbreviation (course prefix) represents the level of the course: 1 for Freshman, 2 for Sophomore, 3 for Junior, 4 for Senior, 5 for the Fifth year in Engineering and Pharmacy, 6 for the Sixth year in Pharmacy, and 7 or 8 for the Graduate level. The next two digits represent the sequence number of the course.

The following is a list of divisions/discipline areas available at LAU:

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC</td>
<td>Accounting</td>
</tr>
<tr>
<td>ARA</td>
<td>Arabic</td>
</tr>
<tr>
<td>ARC</td>
<td>Architecture</td>
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<tr>
<td>ART</td>
<td>Fine Arts</td>
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<tr>
<td>BCH</td>
<td>Biochemistry</td>
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<tr>
<td>BIO</td>
<td>Biology</td>
</tr>
<tr>
<td>BUS</td>
<td>Business</td>
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<tr>
<td>CHM</td>
<td>Chemistry</td>
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<tr>
<td>CIE</td>
<td>Civil Engineering</td>
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<td>CLT</td>
<td>Comparative Literature</td>
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<td>COE</td>
<td>Computer Engineering</td>
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<tr>
<td>COM</td>
<td>Communication Arts</td>
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<tr>
<td>CSC</td>
<td>Computer Science</td>
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<tr>
<td>CST</td>
<td>Cultural Studies</td>
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<tr>
<td>DES</td>
<td>Interior Design</td>
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<td>ECO</td>
<td>Economics</td>
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<td>EDU</td>
<td>Education</td>
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<tr>
<td>ELE</td>
<td>Electrical Engineering</td>
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<tr>
<td>ENG</td>
<td>English</td>
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<td>ENV</td>
<td>Environmental Science</td>
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<tr>
<td>ETH</td>
<td>Ethics</td>
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<tr>
<td>FEB</td>
<td>Family and Entrepreneurial Business</td>
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<tr>
<td>FIN</td>
<td>Finance</td>
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<td>GER</td>
<td>German</td>
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<td>GNE</td>
<td>General Engineering</td>
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<td>GRA</td>
<td>Graphic Design</td>
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<td>HLT</td>
<td>Health</td>
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<td>HOM</td>
<td>Hospitality Management</td>
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<td>HST</td>
<td>History</td>
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<tr>
<td>IBS</td>
<td>International Business</td>
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<tr>
<td>INA</td>
<td>International Affairs</td>
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<td>INE</td>
<td>Industrial Engineering</td>
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<td>INF</td>
<td>Information Science</td>
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<td>MEE</td>
<td>Mechanical Engineering</td>
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<td>MIS</td>
<td>Management Information Systems</td>
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<td>MKT</td>
<td>Marketing</td>
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<td>MTH</td>
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<td>MUS</td>
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<td>NUT</td>
<td>Nutrition</td>
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<tr>
<td>OFM</td>
<td>Office Management</td>
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<tr>
<td>PED</td>
<td>Physical Education</td>
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<td>PHA</td>
<td>Pharmacy</td>
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<td>PHY</td>
<td>Physics</td>
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<td>PJE</td>
<td>Peace and Justice Education</td>
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<td>PKG</td>
<td>Packaging</td>
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<td>POL</td>
<td>Political Science</td>
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<td>PSY</td>
<td>Psychology</td>
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<td>REL</td>
<td>Religion</td>
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<td>SAR</td>
<td>Special Arabic</td>
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<tr>
<td>SOC</td>
<td>Sociology</td>
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<tr>
<td>SPA</td>
<td>Spanish</td>
</tr>
<tr>
<td>STA</td>
<td>Statistics</td>
</tr>
<tr>
<td>WOS</td>
<td>Women’s Studies</td>
</tr>
</tbody>
</table>

#### NUMBERS FOLLOWING COURSE TITLES
Under "Course Descriptions," most course titles are followed by a numbering system that provides further information, as follows: The first number indicates lecture and discussion hours given each week; the second number indicates laboratory hours per week; and the third number indicates credit hours counted toward graduation, upon completion of the course.

**Example:**

BIO806 Research Method II [1-6, 3 cr.]

The course above entails one hour of class discussion, and six hours of laboratory work, per week. Upon completion, the course adds three credits to the student’s record.
The School of Arts and Sciences is home to the Lebanese American University’s oldest programs, which are the core of the University’s liberal arts tradition. As the School diversified its curricula, its body of full-time faculty members and students grew. Now, the School offers numerous programs, ranging from Fine Arts to Computer Science, as well as degrees, ranging from associate to master’s.

Graduates from the School of Arts and Sciences are sought by numerous employers including, but not limited to, the corporate world; the mass media, advertising agencies; and educational institutions of all levels, as well as interior design houses, the public administration sector, science-related organizations, and high-tech operations.

MISSION
In keeping with the Mission of the University, the School of Arts and Sciences strives to promote excellence in teaching and learning, and to encourage research, and other creative endeavors. The School encourages the fostering of diverse viewpoints, and honesty and integrity in academic, professional, and personal affairs of both the Faculty and students.

OBJECTIVES
The objectives of the School of Arts and Sciences include:
- Preparing well-informed and skilled individuals, who are competent, inquisitive, and productive.
- Cultivating literacy in the Arts and Sciences.
- Encouraging creative research.
- Responding to the rapidly changing information technology, in and out of the classroom.
- Providing for continuous Faculty development.
- Developing student exchange programs to enrich the learning experience.
- Preparing students who are motivated to pursue graduate studies.
- Maintaining relations with schools, businesses, and industry, in order to help secure job placements for graduates of the School.
- Responding to changing needs, and trends, by modifying existing programs, and developing new ones.

LEARNING OUTCOMES
As a result of their work in the School of Arts and Sciences, students will:
- Communicate effectively, both orally and in writing.
- Demonstrate an understanding of scientific and quantitative principles.
- Demonstrate an understanding of the major developments in the human experience.
- Link theoretical knowledge to their practical applications.
- Reason critically, and solve problems creatively.
- Integrate and synthesize knowledge, and make connections across disciplines.
- Show an understanding of, and respect for, diverse viewpoints.
- Engage in independent inquiry, applying varied research methodologies.

THE SCHOOL OF ARTS & SCIENCES

FACULTY

DEANS
Aghacy, Samira, Ph.D., Beirut
Hashwa, Fuad, Ph.D., Byblos

ASSISTANT DEANS
Haraty, Ramzi, Ph.D., Beirut
Moubarak, Walid, Ph.D., Byblos

CHAIRS
Beirut
Mohsen, R., Ph.D.
Department of Arts and Communication
Mansour, N., Ph.D.
Department of Computer Science and Mathematics
Oueini, A., Ph.D
Department of Education
Aercke, K., Ph.D.
Department of Humanities
Korfal, S., Ph.D
Department of Natural Sciences
Tabar, P., Ph.D.
Department of Social Sciences

Byblos
Harmanani, H., Ph.D.
Department of Computer Science and Mathematics
Ghosn, I., Ph.D

A&S
ASSOCIATE DEGREE PROGRAMS

ASSOCIATE IN ARTS (A.A.) IN LIBERAL ARTS

Mission

The Liberal Arts Program provides an intellectual foundation for a well-rounded, and comprehensive, education, designed for an increasingly technologically and rapidly changing society. It helps students acquire the knowledge needed for their intellectual development, as well as to gain an understanding of the human condition, and to develop the skills, and the capacity, for continuous learning.

Educational Objectives

The purpose of the Associate in Arts in Liberal Arts is to:

1. Cultivate knowledgeable and skilled individuals.
2. Develop the character and integrity of the students.
3. Prepare students for higher studies.
4. Prepare students for the changing career needs.
5. Develop the critical thinking, communication, and creativity skills, of students.

Learning Outcomes

Graduates in the Associate in Arts in Liberal Arts Program will be able to demonstrate the following:

1. The ability to read, and interpret, texts from several disciplines.
2. The ability to speak clearly, and to write correctly and persuasively.
3. The ability to listen to others, and to be open to new ideas.
4. Cultural diversity.
5. The ability to think, write, and to speak, clearly, comparatively, and analytically, across disciplines.
6. A knowledge base in a chosen field of study.

This Program is for students who seek a Bachelor of Arts (B.A.), or a Bachelor of Science (B.S.), Degree, by providing a basic mix of subjects at the Freshman and Sophomore levels. The Program also allows students to explore their interests, and abilities, before selecting a main course of study in the Liberal Arts.

Students must complete 62 credits in this Program.

Liberal Arts Core Curriculum (18 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
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<td>ARA101</td>
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<td>ARA102</td>
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<tr>
<td>ENG202</td>
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<td>ETH201</td>
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<td>HLT201</td>
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<td>ETH201</td>
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</table>

Liberal Arts Electives (34 credits)

<table>
<thead>
<tr>
<th>Arts (3 credits)</th>
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<tbody>
<tr>
<td>ART101 Introduction to Music and Art</td>
</tr>
<tr>
<td>English Literature (3 credits)</td>
</tr>
<tr>
<td>Philosophy, Religion, and History (9 credits)</td>
</tr>
<tr>
<td>PHL101 Introduction to Philosophy</td>
</tr>
<tr>
<td>Sciences (10 credits)</td>
</tr>
<tr>
<td>MTH111 Basic Mathematics</td>
</tr>
<tr>
<td>STA202 Applied Statistics</td>
</tr>
<tr>
<td>BIO101 or CHM101 or PHY101</td>
</tr>
<tr>
<td>Social Sciences (9 credits)</td>
</tr>
<tr>
<td>Free Electives (10 credits)</td>
</tr>
</tbody>
</table>
PROGRAMS

ASSOCIATE IN APPLIED SCIENCE (A.A.S.) IN COMMUNICATION MEDIA

Mission
The Mission of the Communication Media Program is to introduce students, through a liberal arts education, to the theory and practice of the Media, and to widen their communicative skills in the pursuit of higher education, as well as in their careers in the industry.

Educational Objectives
The purpose of the Associate in Applied Science in Communication Media is to:
1. Give students a basic background in the media, in order for them to pursue advanced studies in communication, such as Journalism, Theater, or Radio/TV/Film.
2. Offer students the knowledge needed to begin a career in communication.
3. Give students the opportunity to interact, at a preliminary level, in the media in Lebanon.

Learning Outcomes
Graduates in the Associate in Applied Science in Communication Media will be able to:
1. Become acquainted with the ethical and communication skills needed to work in the world of media.
2. Receive relevant training in the area related to the emphasis of their choice.
3. Develop an appreciation for the Arts and Media.
4. Acquire the basic knowledge, and expertise, in their field, so as to become successful in their future careers.

The Associate in Applied Science in Communication Media Program introduces students to the theory and practice of the mass media and drama. The courses consider the growing importance of communication media, and its application in the news industry, in public relations, in business, as well as in the arts and professions. Students who wish to attain a Bachelor of Arts (B.A.) have the option of emphasizing in Radio/TV/Film, Journalism, or Theater.

<table>
<thead>
<tr>
<th>Liberal Arts Core Curriculum (14 credits)</th>
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</thead>
<tbody>
<tr>
<td>ARA101 Arabic Essay Reading &amp; Writing I</td>
<td>3</td>
</tr>
<tr>
<td>ARA102 Arabic Essay Reading &amp; Writing II</td>
<td>3</td>
</tr>
<tr>
<td>ART201 Fundamentals of Design</td>
<td>3</td>
</tr>
<tr>
<td>PHD211 Photography I</td>
<td>3</td>
</tr>
<tr>
<td>COM210 Communication Media and Society</td>
<td>3</td>
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<tr>
<td>COM221 Introduction to Radio/TV/Film</td>
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</tr>
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<td>COM242 Introduction to the Art of Theater</td>
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Liberal Arts Electives (16 credits)

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<tbody>
<tr>
<td>ART101 Introduction to Music and Art</td>
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</table>

<table>
<thead>
<tr>
<th>Philosophy, Religion and History (3 credits)</th>
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</thead>
<tbody>
<tr>
<td>SCI101 Philosophy, Religion and History</td>
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</table>

<table>
<thead>
<tr>
<th>Social Sciences (3 credits)</th>
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</thead>
<tbody>
<tr>
<td>SCI101 Philosophy, Religion and History</td>
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</table>

Major Core Requirements (15 credits)

<table>
<thead>
<tr>
<th>A. Radio/TV/Film</th>
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<tbody>
<tr>
<td>COM215 Photojournalism</td>
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<tr>
<td>COM225 The Art of Film</td>
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<tr>
<td>COM235 Studio Television Production</td>
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<tr>
<td>COM236 Radio Production</td>
</tr>
<tr>
<td>COM326 Script Writing</td>
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</table>

<table>
<thead>
<tr>
<th>B. Journalism</th>
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</thead>
<tbody>
<tr>
<td>COM213 Public Relations</td>
</tr>
<tr>
<td>COM214 News Writing and Reporting</td>
</tr>
<tr>
<td>COM215 Photojournalism</td>
</tr>
<tr>
<td>COM221 Arab and International Media</td>
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<tr>
<td>COM225 Feature and Magazine Writing</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Theater</th>
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</thead>
<tbody>
<tr>
<td>COM251 Introduction to Acting</td>
</tr>
<tr>
<td>COM244 Introduction to Technical Stagecraft</td>
</tr>
<tr>
<td>COM247 Theater in Performance</td>
</tr>
<tr>
<td>COM337 Creative Dramatics</td>
</tr>
<tr>
<td>ARA342 or ENG314 or ENG318</td>
</tr>
</tbody>
</table>

Free Electives (2 credits)

<table>
<thead>
<tr>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARA341 Introduction to Object Oriented Programming</td>
</tr>
<tr>
<td>MTH111 Business Mathematics</td>
</tr>
<tr>
<td>MTH207 Discrete Structures I</td>
</tr>
</tbody>
</table>

PROGRAMS

ASSOCIATE IN APPLIED SCIENCE (A.A.S.) IN COMPUTER SCIENCE

Mission
The Mission of the Computer Science Program is intended to prepare students for entry-level employment in information technology, especially in business organizations.

Educational Objectives
The purpose of the Associate in Applied Science in Computer Science is to:
1. Provide students with the basic concepts and principles of computer programming, and software development.
2. Expose students to the fundamentals of business.
3. Equip students with the basic mathematical skills.

Learning Outcomes
Graduates in the Associate in Applied Science in Computer Science will acquire the following:

1. Comfortable programming skills, in modern programming languages.
2. Basics of databases, and data communication.
4. Basic business principles in accounting, economics, and management.

Students are required to take courses in Computer Science, Business Management, Accounting, and Economics for a total of 62 credits.

<table>
<thead>
<tr>
<th>Liberal Arts Core Curriculum (18 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARA101 Arabic Essay Reading &amp; Writing I</td>
</tr>
<tr>
<td>ARA102 Arabic Essay Reading &amp; Writing II</td>
</tr>
<tr>
<td>PED2xx Physical Education</td>
</tr>
<tr>
<td>HLT201 Basic Health</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Liberal Arts Electives (16 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCI101 Philosophy, Religion and History</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Sciences (4 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHD211 Photography I</td>
</tr>
<tr>
<td>CSC241 Introduction to Computing</td>
</tr>
<tr>
<td>CSC243 Introduction to Object Oriented Programming</td>
</tr>
<tr>
<td>CSC245 Objects and Data Abstraction</td>
</tr>
<tr>
<td>CSC331 Business Data Communication</td>
</tr>
<tr>
<td>CSC372 Database Analysis, Design, and Management</td>
</tr>
<tr>
<td>MTH111 Business Mathematics</td>
</tr>
<tr>
<td>MTH207 Discrete Structures I</td>
</tr>
<tr>
<td>STA202 Applied Statistics</td>
</tr>
</tbody>
</table>
PROGRAMS

Other Major Requirements (12 credits)
- ACC201 Principles of Accounting I 3
- ACC202 Principles of Accounting II 3
- BUS201 Introduction to Business 3
- MGT201 Introduction to Management 3

Free Electives (2 credits)

ASSOCIATE IN APPLIED SCIENCE (A.A.S.) IN GENERAL SCIENCE

The Associate in Applied Science in General Science Program is a two-year Program, designed to prepare students for employment as a technician in chemical and allied industries, in hospitals, and in environment labs, or to continue their education in such fields as chemistry, physics, medicine, or pharmacy, depending on the student’s course choice. The Program offers basic knowledge in science, and foundation level in mathematics, in addition to the liberal arts educational requirements.

Mission
The Mission of the Associate in Applied Science in General Science Program is to provide students with the basic theoretical and practical knowledge in Biology, Chemistry, and Physics, through a liberal arts education, preparing students for technical employment, or the pursuit of a degree program in related fields.

Educational Objectives
The purpose of the Associate in Applied Science in General Science is to:
1. Provide the basic laws and concepts of general science.
2. Provide the necessary laboratory techniques, as related to course works.
3. Develop mathematical skills needed for science courses.
4. Provide effective communication, and critical thinking skills.
5. Provide the fundamental laws, and concepts, of their concentration fields.
6. Prepare students for successful integration into the job market.

Learning Outcomes
Graduates in the Associate in Applied Science in General Science will be able to:
1. Attain the basic concepts in biology, chemistry, and physics.
2. Identify and solve applied science problems.
3. Conduct experiments, understand laboratory practice guidelines, as well as analyze, and interpret, data.
4. Develop an inquiry method of work.
5. Relate the learned skills to their environment.
7. Practice team work.
8. Pursue higher education in related science fields, as well as be prepared for technical careers.

Students interested in the Associate in Applied Science in General Science Program must complete a minimum of 62 credits for Graduation, of which 31 credits are for the Major.

Liberal Arts Core Curriculum (11 credits)
- ARA101 Arabic Essay and R. & W. I 3
- ARA102 Arabic Essay and R. & W. II 3
- PED2xx Physical Education 1
- HLT201 Basic Health 1
- ENG202 Sophomore Rhetoric 3
- OR
- ENG203 Fundamentals of Oral Communication 3

Liberal Arts Electives (18 credits)
- ART101 Introduction to Music and Art 3
- PHL101 Introduction to Philosophy 3
- Sciences (6 credits)
- MTH101 Calculus I 3
- MTH102 Calculus II 3
- Social Sciences (3 credits)

Major Core Requirements (31 credits)
- BIO201 General Biology I 4
- BIO202 General Biology II 4
- CHM101 General Chemistry 4
- CHM201 Chemical Principles 3
- CHM202 Analytical Chemistry 3
- CHM203 Qualitative Analysis 2
- MTH201 Calculus III 3
- PHY111 Mechanics 4
- PHY201 Electricity & Magnetism 4

Free Electives (2 credits)

ASSOCIATE IN APPLIED SCIENCE (A.A.S.) IN GRAPHIC DESIGN

Mission
The Mission of the Associate in Applied Science in Graphic Design Program is to give students a foundation in design, and an introduction to the field of the visual media, through a liberal arts education, at which point they can pursue a career, and/or higher studies.

Educational Objectives
The purpose of the Associate in Applied Science in Graphic Design is to:
1. Provide the basis upon which students develop an aesthetic taste and touch in projects.
2. Prepare students to follow a print or digital field.
3. Give students both the theory and practice in the principles of design.

Learning Outcomes
Graduates in the Associate in Applied Science in Graphic Design will be able to:
1. Acquire knowledge, and certain skills, that are required for further studies in print or digital design.
2. Nurture an aesthetic view of design.
3. Demonstrate principles of design, through the different mediums and concepts.
4. Demonstrate ethical standards in the field.

This Program offers a set of introductory classes to prepare students to enter the Graphic Design Bachelor in Science Program. After completing the Foundation Year Requirements, students enroll in the studio courses that focus on developing their technical skills for the corporate identity design, and packaging applications.

Students interested in the Associate in Applied Science in Graphic Design Program must complete 73 credits; 9 credits of the Liberal Arts Core Curriculum, 19 credits of Liberal Arts Electives, 29 credits of the Foundation Year Requirements, and 16 credits of the Graphic Design Core Requirements.

Liberal Arts Electives (19 credits)
- ART221 Drawing I 3
- GRA231 Design Studio I-A 3
- GRA232 Design Studio I-B 3
- GRA233 Design Studio II-A 3
- GRA234 Design Studio II-B 3
- GRA240 Sketching 2
- GRA241 Technical Graphics I 2
- GRA251 Introduction to Computer Graphics 3
- GRA261 Introduction to Design 2
- GRA271 History of Design 2
- PH211 Photography I 3

Foundation Requirements (29 credits)
- ART221 Drawing I 3
- BRA231 Design Studio I-A 3
- GRA233 Design Studio II-A 3
- GRA234 Design Studio II-B 3
- GRA240 Sketching 2
- GRA241 Technical Graphics I 2
- GRA251 Introduction to Computer Graphics 3
- GRA261 Introduction to Design 2
- GRA271 History of Design 2
- PH211 Photography I 3

Other Major Requirements (12 credits)
- ACC201 Principles of Accounting I 3
- ACC202 Principles of Accounting II 3
- BUS201 Introduction to Business 3
- MGT201 Introduction to Management 3

Free Electives (2 credits)


**PROGRAMS**

**BACHELOR OF ARTS (B.A.) DEGREE PROGRAMS**

### BACHELOR OF ARTS (B.A.) IN COMMUNICATION ARTS

**Mission**

The Mission of the Communication Arts Program is to generate, through a liberal arts education, communicators with extensive cultural, artistic, and technical, proficiency and versatility, so as to enable them to compete in the local, global, and regional media market, as well as in graduate schools.

**Educational Objectives**

The purpose of the Bachelor of Arts in Communication Arts is to:

1. Give our students the knowledge, and proficiency, that makes them qualified for a rapidly growing variety of jobs such as script writing, editing, directing, producing, reporting, acting, casting, dubbing, documentary film making, etc.
2. Train students who are interested in pursuing a teaching career in drama, and audio visual arts, at the high school level in Lebanon.
3. Prepare individuals with a well-rounded education who can contribute to the ongoing development of the media, and cultural industries, in the Region.
4. Provide the students with a research background that enables them to continue their education.

**Learning Outcomes**

Graduates in the Bachelor of Arts in Communication Arts will be able to:

1. Develop a critical appreciation of the audio and visual arts, and will be able to express this in writing.
2. Demonstrate a balanced grasp of the theoretical, and practical, aspects of the field.
3. Understand the ethical, legal, and social, issues related to media.
4. Display a firm grasp of the research methods, leading them to the production of videos, films, articles, plays, radio/TV programs, or research papers.
5. Demonstrate the ability to operate the state of the art equipment in the studio, theatre, and the newsroom.
6. Provide evidence of great managerial competence, in any communication arts based environment.
7. Perform effectively in any production team, and to function as leaders, whenever the need arises.
8. Engage in creative production responsibilities, and/or create scholarly research.

**Graphic Design Core Requirements**

(16 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GRA301</td>
<td>Intermediate Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>GRA312</td>
<td>Printing Variables</td>
<td>3</td>
</tr>
<tr>
<td>GRA342</td>
<td>Art of Illustration</td>
<td>3</td>
</tr>
<tr>
<td>GRA351</td>
<td>Graphic Design I</td>
<td>3</td>
</tr>
<tr>
<td>GRA352</td>
<td>Graphic Design II</td>
<td>3</td>
</tr>
<tr>
<td>GRA490</td>
<td>Graphic Design Internship</td>
<td>1</td>
</tr>
</tbody>
</table>

**Suggested Electives**

- COM486 Topics in Media Studies

**Emphasis requirements**

- COM235 Studio TV Production
- COM236 Radio Production
- COM324 History & Theory of Film
- COM326 Script Writing
- COM335 Advanced TV Production
- COM342 Play Production I
- COM428 Film Making
- COM486 Topics in Media Studies

**Emphasis Requirements**

- COM235 Studio TV Production
- COM236 Radio Production
- COM238 Drama Workshop
- COM251 Interpersonal Communication
- COM428 Film Making
- COM486 Topics in Media Studies

**JOURNALISM**

**Core Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>COM210</td>
<td>Communication Media and Society</td>
</tr>
<tr>
<td>COM222</td>
<td>Introduction to Radio/TV/Film</td>
</tr>
<tr>
<td>COM225</td>
<td>The Art of Film</td>
</tr>
<tr>
<td>COM242</td>
<td>Introduction to the Art of Theater</td>
</tr>
<tr>
<td>COM329</td>
<td>Media Law and Ethics</td>
</tr>
<tr>
<td>COM451</td>
<td>Media Research Methods</td>
</tr>
<tr>
<td>COM499</td>
<td>Internship</td>
</tr>
</tbody>
</table>

**Emphasis Requirements**

- COM246 Broadcast Journalism
- COM485 Topics in Current Affairs

**Suggested Electives**

- COM361 Broadcast Journalism
- COM485 Topics in Current Affairs

**RADIO/TV/FILM**

**Core Requirements**

<table>
<thead>
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<td>Media Research Methods</td>
</tr>
<tr>
<td>COM499</td>
<td>Internship</td>
</tr>
</tbody>
</table>

**Emphasis Requirements**

- COM218 Arabic News Writing & Reporting
- COM214 News Writing & Reporting
- COM221 Arab and International Media
- COM325 Feature & Magazine Writing
- COM327 Journalism Workshop I
- COM422 Journalism Workshop II
- COM361 Broadcast Journalism
- COM485 Topics in Current Affairs

**Suggested Electives**

- COM360 Broadcast Journalism
- COM485 Topics in Current Affairs

**WOS412 Representation of Women in the Arts & Media**

**Emphasis Requirement**

- COM255 Current Affairs in Lebanese Media

**Students majoring in Communication Arts must complete, besides the General University Requirements, 42 credits of the Major courses, which are split into the Core and Emphasis Requirements, as follows:**
PROGRAMS

THEATRE
Core Requirements
COM210 Communication, Media and Society
COM329 Media Law and Ethics
COM222 Introduction to Radio/TV/Film
COM225 The Art of Film
COM242 Introduction to the Art of Theater
COM451 Media Research Methods
COM499 Internship

Emphasis Requirements
COM241 Introduction to Acting
COM244 Introduction to Technical Stagecraft
COM247 Theater in Performance
COM326 Script Writing
COM342 Play Production I
COM457 Topics in Drama & Theatre
COM442 Play Production II
COM434 Advanced Acting

Suggested Electives
Same list in addition to following:
COM368 Radio/TV/Film Workshop
PH0212 Photography II
COM213 Public Relations
COM238 Drama Workshop
COM251 Interpersonal Communication
COM332 Editing
WOS412 Representations of Women in the Media
COM255 Current Affairs in Lebanese Media

BACHELOR OF ARTS (B.A.) IN EDUCATION
Mission
Under the umbrella of LAU’s Vision, the Mission of the Education Program is to prepare professional K-12 teachers who are academically well grounded in both their subject matter, and pedagogy, and to enable experienced educators to update their knowledge and skills.

Educational Objectives
The Education Program aims to prepare teachers who demonstrate:
A. Relevant Knowledge – This includes:
   - Depth and breadth in subject, and in content.
   - General pedagogical knowledge.
   - Specific pedagogical content knowledge.

   - An awareness of the professional standards
   - An awareness of the developmentally practice (in early childhood education).
   - An awareness of the national curriculum standards.
B. Practical Skills
   - Diverse approaches to instruction.
   - Effective classroom management strategies.
   - Motivational strategies.
   - Strategies to promote higher-level thinking.
   - Guidance and Discipline methods.
C. Appropriate Attitude
   - Readiness to develop authentic relationships with students.
   - Readiness to establish a democratic, and socially just, learning environment.
   - Readiness to reflect on one’s practice, and continuous learning.

Learning Outcomes
Graduates in the Bachelor of Arts in Education will be able to:
1. Develop clear and measurable instructional objectives.
2. Prepare yearly, term, and unit plans to adequately address curriculum content.
3. Prepare plans for effective instructional cycles, using a variety of instructional approaches appropriate to the content/skill.
4. Employ effective instructional practices that optimize learning opportunities.
5. Use appropriate assessment methods, both formative and summative.
6. Plan and implement effective classroom management strategies.
7. Employ strategies to motivate students.
8. Implement strategies that minimize discipline problems.

LAU offers two programs in Education:
1. Early Childhood Education
2. Elementary Education

The Early Childhood Education Program prepares students to:
   - Plan and administer all the aspects of early childhood programs.
   - Teach young students basic motor and cognitive skills through art, music, creative drama, and other techniques.
   - Use carefully planned teaching strategies based on children’s developmental stages.

The Elementary Education Program prepares students to:
   - Teach children reading, language arts, mathematics, science, social studies, art, drama, music, and physical education.
   - Employ teaching strategies which stimulate children’s thinking and challenge them to learn.
   - Use the latest instructional tools, and techniques, to make your teaching more effective.

All Programs of study include:
1. The Core Requirements - These include the General Education courses.
2. The Emphasis Requirements—These include courses in the content area, such as English, Arabic, Social Studies, Math, and Science, Drama, etc…, and courses in Methods, such as teaching of social studies, Art Education etc…
3. Practicum and Methodology

Requirements for a B.A. in Education
General University Requirements (34 Credits)
A. Core Course for all Education Majors (24 credits)
EDU201 Fundamentals of Education 3
EDU301 School Counseling 3
EDU319 Teaching Reading 3
EDU321 Children’s Literature 3
EDU331 Educational Technology 3
EDU332 Educational Measurement 3
EDU499 Senior Study 3
PSY422 Psychology of Learning 3

B. Methods Courses (6 credits)
COM337 Creative Dramatics 3
ART331 Art Education 3
MUS301 Music 3
EDU312 TELF 3
EDU313 Teaching of Science and Math 3
EDU314 Teaching of Social Studies 3
EDU414 Methods and Materials in ECE* 3

* Required for Early Childhood Education.
C. Practicum (12 credits)
EDU202 Observation and Curriculum 3
EDU419 Internship 3

And one Practice Teaching course:
EDU420 Practice Teaching, Early Childhood Education 6
EDU421 Practice Teaching, Elementary Education 6
EDU422 Practice Teaching, Elementary Mathematics, and Science 6

D. Subject Matter Area Electives (12 credits)
For Early Childhood Education:
EDU205 Safety and Health 3
EDU213 Introduction to Language 3
   - Other subject matter area courses 6
   - Other subject matter area courses 6

For Elementary Education:
Choose 12 credits from one or two subject matter areas.
E. Free Electives (7 credits)
BACHELOR OF ARTS (B.A.) IN ENGLISH

Mission
The Mission of the Bachelor of Arts in English Program is to offer a superior English Program which appeals to students, and which offers the widest range of career possibilities after graduation.

Educational Objectives
The purpose of the Bachelor of Arts in English Program is to:

1. Provide our students with the interdisciplinary background, and the expertise in speaking, and to provide them with the analytical and writing skills needed to make them fully qualified for the various career paths including, but not limited to, advertising, banking, business, journalism, NGO work and publishing.
2. To prepare our students for today’s interdisciplinary Graduate Programs in English, Comparative Literature, Cultural Studies, or any field of the Humanities.
3. To give our students wishing to pursue a career in high school education a level of literary and cultural proficiency, which will qualify them for the best jobs in Lebanon, and the Region (assuming they also acquire the Teaching Diploma).

Learning Outcomes
Graduates in the Bachelor of Arts in English will:

1. Enhance their writing proficiency through literary, and linguistic assignments.
2. Acquire both literary and linguistic content in various areas, and become aware of the cultural, political, and social perspectives of different societies.
3. Analyze and critique different topics, and develop their research methods.
4. Reflect upon the different aspects of today’s global issues, in a literary and linguistic framework.

Learning Outcomes of the Language Emphasis
Graduates in the Bachelor of Arts in English with Language Emphasis will:

1. Identify and explain the different subcategories related to language, namely: morphology, syntax, semantics, and pragmatic.
2. Describe and distinguish the major grammatical functions related to language.
3. Analyze language, and its social context, and explain the linguistic differences encountered within a society.
4. Identify and summarize the different reading and writing approaches, and the strategies related to the English language.
5. Explain and critique the different topics related to the English language.

The English Major prepares students for a career in fields that demand clear writing and expression in fluent English, the presentation of logical arguments, and the critical evaluation of the opinions of others. Besides education, these fields include business, pre-law, communication, journalism, advertising, technical and creative writing, and translation. Students with diverse interests are welcome.

Learning Outcomes of the Literature Emphasis
Graduates in the Bachelor of Arts in English with Literature Emphasis will:

1. Develop a high level of proficiency through written assignments and reports.
2. Demonstrate a well-developed oral proficiency, through oral reports, and/or a question-and-answer teaching strategy.
3. Demonstrate the ability to subtly appreciate the allusive qualities of literature, film, and other arts (through cross-listed and team-taught courses).
4. Acquire a solid knowledge of the thematic content, and the formal features of the English literary tradition, from the Middle Ages to the present, through the coursework which emphasizes the constructiveness of meaning.
5. Recognize, examine, compare, analyze, and evaluate the principal theoretical assumptions in literature and culture, through coursework in theory.
6. Acquire a sense of, and reflect upon, the relevance of literature and culture in the social and political life of a people, through courses that focus on the connections between literature and social issues.
7. Acquire a firm grasp of research methods, through the emphasis on the written component of coursework.

Literature Emphasis Requirements (24 credits)

Choose 6-9 credits from:

ENG323 Renaissance Drama 3
ENG324 Medieval Literature 3
ENG325 Renaissance Poetry 3
ENG326 Restoration and Neoclassical Literature 3
ENG328 Early Novel 3

Choose 3 credits from:

ENG336 Romantic and Victorian Poetry 3
ENG339 Nineteenth Century British Novel 3

Choose 6-9 credits from:

ENG342 Modernism and Beyond 3
ENG345 Twentieth Century British Novel 3
ENG346 Contemporary Culture 3
ENG348 Postcolonial Angophone Literatures 3
ENG487 Topics in Drama and Theatre 3
ENG479 Senior Study 3

Regardless of their chosen emphasis, English Majors can obtain a Teaching Diploma by taking six designated Education courses (18 credits), including EDU418 Practice Teaching. If the student chooses any from these six Education courses, in order to satisfy part of the Core Curriculum requirement, he/she must take the equivalent number of courses/credits, in any field, to be awarded the Teaching Diploma.

PROGRAMS

BACHELOR OF ARTS (B.A.) IN FINE ARTS

Mission
The Mission of the Fine Arts Program is to help students to attain full development as leading creative artists, and thinkers, in both the studio arts context, and within the framework of art history and philosophy.

Educational Objectives
The purpose of the Bachelor of Arts in Fine Arts is:

1. To seek a liberal Arts education designed to acquaint the students with leading ideas and forces that steer, and shape, the arts, and art education, globally.
2. To provide students with the technical skills, and the knowledge of the use of materials and technologies in the making of drawing, sculpture, printmaking, ceramics, and multimedia and computer art, as professional artists.
3. To prepare students interested in art education for an art teaching career.
4. To pave the way for Graduate studies in Studio Art, Art Theory, and/or Art Education.
5. To relate the Fine Arts to other disciplines, and practices, in design, technology, science, and the humanities, for inspiration and areas of interaction.

6. To help heighten students’ sense of imagination, creative personal expression, and their pursuit for excellence in today’s highly competitive art world.

7. To provide a yearly art exhibit, and an accompanying art catalog featuring the students’ works, giving the students a taste of a professional art exhibit, and exposing them to the art galleries, art critics, and the public at large.

Learning Outcomes

Graduates of the Fine Arts Program will be able to perform as:

1. A professional artist who is highly trained, and equipped, to exhibiting and marketing his/her work, accompanied with a strong portfolio, and, at the end of the year, a state-of-the-art art exhibit catalogue featuring mainly Senior students’ works.

2. An art teacher in elementary and secondary school, with a strong educational background, with a distinctive art portfolio.

3. A Graduate student pursuing higher education in Art Theory, and/or in Creative Studio Art.

4. An illustrator contributing drawings and illustrations to books, newspapers, and magazines.

5. An artist/intellectual contributing to one’s own culture, and to the world reservoir of creative art and art theory works.

6. An Art critic.

7. An artist seeking employment in museums and art galleries.

The Fine Arts Program is designed to help students attain full development as visionaries in both a general arts context, and within the framework of art’s history and philosophy. Students are encouraged to create a personal style, and a critical approach to the solution of individual problems, by exploring two- and three-dimensional media and forms. An annual Art Exhibit is an integral part of the Program.

By choosing suitable electives, students may prepare themselves for Graduate studies, or for careers in art production, scholarly research, art education, art reporting, graphic and industrial design, book illustration, theater, or the management of art enterprises.

Students need 46 credits to graduate (37 credits for the Major, and 9 credits for the Other Requirements).

Major Requirements (37 credits)

ART201 Fundamental of Design I 3
ART202 Fundamental of Design II 3
ART221 Drawing I (Fundamental Techniques) 3
ART222 Drawing II (Human Figure) 3
ART223 Perspective Drawing I 1
ART334 Graphics 3
ART341 Painting I 3
ART342 Painting II 3
ART351 Sculpture I 3
ART352 Sculpture II 3
ART441 Painting III 3
ART442 Painting IV 3
ART499 Senior Study 3

Other Requirements (9 credits)

ART353 History of Art II 3
ART355 Islamic Art of the Middle East 3

Choose one of the following

DE537 History of Architecture I 3
ART331 History of Art I 3

Bachelor of Arts (B.A.) in Political Science

Mission

Basing itself on the University’s Mission, the Bachelor of Arts Program in Political Science provides students with a high quality education that covers the major fields of political science, namely: Comparative Politics, International Relations, and Political theory, as well as the methodology of political analysis. The Bachelor of Arts Program prepares students for Graduate studies, and/or a variety of professional careers.

Educational Objectives

The purpose of the Bachelor of Arts in Political Science is to:

1. Prepare students for the job market, locally and abroad, with business, industry, or government, and non-governmental institutions.

2. Enable the students to seek careers in higher education, the government bureaucracy, journalism, international organizations, legal profession, research, advertising agencies, and any of the business enterprises and proliferating organizations that maintain political and economic activities.

3. Enhance the students’ knowledge of the nature of governmental processes, the functions of political systems, the structures and roles of institutions and constitutions, and the mechanism of the decision-making process at the local, national, and international levels.

4. Enhance research, and to foster a spirit of discovery, as well as to prepare students for Graduate study.

5. Introduce outreach and engagement by allowing faculty and students to contribute to the community at large.

6. Enhance cultural, social, legal, and ethical issues inherent in the discipline of political science, and international affairs, in the Undergraduate education.

Learning Outcomes

Graduates in the Bachelor of Arts Program in Political Science will:

1. Be able to comprehend the nature of government processes, the functions of political systems, the structures and roles of institutions and constitutions, the political economy of Third World countries, international relations and foreign policy, and the challenges of globalization.

2. Acquire the necessary theoretical, and methodological tools that are essential for high-level intellectual pursuits.

3. Be encouraged to think creatively about the major issues pertaining to this field of study, and to identify problems, conceptualize ideas, and communicate solutions, in various situations that emerge at the working place.
Educational Objectives
The purpose of the Bachelor of Arts in Political Science – International Affairs is to:
1. Prepare students for the job market locally and abroad, with business, industry, or government, and non-governmental institutions.
2. Enable the students to seek careers in higher education, the government bureaucracy, journalism, international organizations, legal profession, research, advertising agencies, and any of the business enterprises and proliferating organizations that maintain political and economic activities.
3. Enhance the students’ knowledge of the nature of governmental processes, the functions of political systems, the structures and roles of institutions and constitutions, and the mechanisms of the decision-making process at the local, national, and international levels.
4. Enhance research, and to foster a spirit of discovery, as well as to prepare students for Graduate study.
5. Offer students a choice between three areas of emphasis: Development Studies/International Economics, Developmental Studies/Consular and Diplomatic Services, and Consular and Diplomatic Services/International Economy.
6. Introduce outreach and engagement, by encouraging faculty and students to contribute to the community at large.
7. Enhance the cultural, social, legal, and ethical issues inherent in the discipline of political science and international affairs, in the undergraduate education.

Learning Outcomes
Graduates in the Bachelor of Arts Program in Political Science – International Affairs will:
1. Understand the nature of government processes, the functions of political systems, the structures and roles of institutions and constitutions, the political economy of Third World countries, international relations and foreign policy, and the challenges of globalization.
2. Attain the necessary theoretical and methodological tools essential for high-level intellectual pursuits.
3. Be encouraged to think creatively about the major issues pertaining to this field of study, and to identify problems, conceptualize ideas, and communicate solutions, in various situations that emerge at the working place.

Students need 57 credits to graduate (36 credits for the Core, 9 credits for the Other Requirements, and 12 credits for the Emphasis). Students majoring in International Affairs are exempted from taking Social Sciences’ requirements.

Core Requirements (36 credits)
- POL201 Introduction to Political Science 3
- POL202 Lebanese Politics and Administration 3
- POL211 Comparative Governments of Major Powers 3
- POL311 Methodology and Political Analysis 3
- POL332 Public International Law 3
- POL331 International Organization 3
- POL431 International Regional Organizations and Agencies 3
- POL421 The Middle East in International Affairs 3
- POL499 Senior Study 3
- ECO201 Microeconomics 3
- ECO202 Macroeconomics 3
- MGT201 Introduction to Management 3

Other requirements (9 credits)
- HST311 World History in the Twentieth Century 3
- HST312 Europe and the Middle East in the Nineteenth and Twentieth Century 3

And one of the following courses:
- POL432 Diplomatic and Consular Service 3
- POL433 The UN System & Problems of Development 3
- ECO401 International Economics 3

Choose one of the following Emphases: 12 or 15 credits
A. Developmental Studies/International Economics (15 credits)
- ECO311 Economic Development 3
- ECO321 Monetary Theory and Policy 3
- ECO322 Public Finance and Fiscal Policy 3
- POL312 Politics of Developing Areas 3
- MTH—Any Mathematics course 3

OR
B. Consular & Diplomatic Service Developmental Studies (12 credits)
- ECO321 Monetary Theory and Policy 3
- ECO322 Public Finance and Fiscal Policy 3
- POL313 Concepts International Relations 3
- POL322 Foreign Policy of the Major Powers 3

OR
C. Consular & Diplomatic Service/International Economics (12 credits)
- ECO311 Economic Development 3
- POL312 Politics of Developing Areas 3
- POL313 Concepts International Relations 3
- POL322 Foreign Policy of the Major Powers 3

Other Requirements (6 credits)
- HST311 European History since 1914 3
- HST312 Europe and the Middle East in the 19th and 20th Centuries 3
PROGRAMS

Students must complete 39 credits in the Core Requirements, 25 credits in the General University Requirements, and 28 credits in the Free Electives.

Core Requirements (39 credits)
- PSY201 Introduction to Psychology 3
- PSY202 Child Psychology 3
- PSY203 Psychology of Youth 3
- PSY204 Social Psychology 3
- PSY301 Physiological Psychology 3
- PSY311 The Exceptional Child 3
- PSY322 Cognitive Psychology 3
- PSY325 Abnormal Psychology 3
- PSY335 Consumer’s Psychology 3
- PSY421 Theories of Personality 3
- PSY422 Psychology of Learning 3
- PSY498 Topics in Psychology 3
- PSY499 Psychology Senior Study 3

Free electives (28 credits)

Bachelor of Arts (B.A.) in Social Work

Mission
The Social Work Program at LAU seeks to prepare students for generalist social work practice, through the provision of a professional foundation curriculum. This curriculum contains the common body of the profession’s knowledge, values, and skills that is transferable to groups, settings, and social problem areas. The Program endorses a liberal arts perspective, and a professional foundation content, which prepares students for direct services with client systems of various sizes and types.

Educational Objectives
The purpose of the Bachelor of Arts in Social Work is to:
- Help students connect foundation knowledge with practice concerns and issues.
- Prepare students to use bio psychosocial development across the life span, with an integrative multidimensional approach.
- Instill in students the skills for assessing the social functioning of individuals and families, and to design appropriate intervention strategies.
- Provide content about social work practice with client systems of various sizes and types.
- Prepare graduates to participate in diverse populations.
- Provide content about the social contexts of social work practice, the changing nature of those contexts, the behavior of organizations, and the dynamics of change.
- Infuse, throughout the curriculum, the values and ethics that guide professional social workers in their practice.
- Prepare graduates who are aware of their responsibility to continue their professional growth and development.

Learning Outcomes
Graduates in Bachelor of Arts in Social Work will be able to:
1. Apply critical thinking skills, within the context of professional social work practice.
2. Practice within the values and ethics of the social work profession.
3. Understand and appreciate diversity, and therefore respect the various population groups.
4. Demonstrate a professional use of themselves.

Students majoring in Social Work must complete 39 credits. The Program aims at acquainting students with the principles in the social sciences and humanities, as well as the basic skills in interpersonal and inter-group communication. Students are helped to understand, and to critically analyze, current and past social policies, with a focus on their social and economic dynamics. The Program prepares students for Graduate studies, or for careers in social work, based on the local and regional market demand.

Major Core Requirements (21 credits)
- SOC301 Introduction to Social Work 3
- SOC313 Family and Child Welfare 3
- SOC402 Social Work Intervention I 3
- SOC403 Social Work Intervention II 3
- SOC404 Social Work Practicum I 3
- SOC405 Social Work Practicum II 3
- SOC499 Social Work Senior Study 3

Social Science Requirements (18 credits)
- SOC201 Introduction to Sociology 3
- SOC311 Social Problems 3
- SOC321 Sociology in the Arab World 3
- PSY201 Introduction to Psychology 3
- PSY204 Social Psychology 3
- PSY311 The Exceptional Child 3

Free Electives (19 credits)

Minor in Sociology
A Minor in Sociology seeks to provide a quality education to students, and to enrich their knowledge of modern societies, with particular emphasis on Lebanon and other Arab countries.

The Minor aims at advancing a strong sociological understanding of contemporary society, addressing its complexities, and the individual’s place within it.

Educational Objectives
The purpose of the Minor in Sociology is to:
1. Enhance students’ ability to think critically about sociological theories and social issues.
2. Develop students’ research and writing skills.
3. Develop students’ professional and practical skills, so as to assist them in obtaining jobs in the local, regional, and international markets.
4. Provide a strong sociological grounding for students majoring in other disciplines.

Learning Outcomes
Graduates in the Minor in Sociology will:
1. Acquire the ability to apply sociological concepts, to better understand the social issues, and to overcome social problems.
2. Acquire the ability to find jobs in fields related to Sociology (social work, community development, social research, journalism, etc.)
3. Develop the ability to communicate effectively.
4. Lay the groundwork for the pursuit of graduate studies in Sociology.

How Students Benefit from the Sociology Minor
The courses for the Minor in Sociology will be counted as part of the Social Science requirements and free electives. LAU students will have a chance to graduate with a Degree in their Major, and a Minor in Sociology.

Students from many disciplines, such as Education, Communication Arts, Social Work, Political Science, International Affairs, Economics, English Literature, Graphic Design, and Architecture, will benefit from this Minor. The contents of the courses are designed to address some of the issues raised by these disciplines, from a sociological perspective.

For a Minor in Sociology, students must choose six out of the following eight courses:
- SOC201 Introduction to Sociology (prerequisite)
- SOC215 Introduction to Gender Studies
- SOC212/COM212 Media & Society
- SOC303/ARC581 Urban Sociology
- SOC304 Sociology of Religion
- SOC321 Sociology of the Arab World
- SOC401 Sociological Theories (required)
- SOC488 Topics in Sociology (required)

To complete the Minor, students have to choose three courses, in addition to SOC201, SOC401, and SOC488.
PROGRAMS

TEACHING DIPLOMA
Mission
Under the umbrella of LAU’s Vision, the Mission of the Education Program, as well as the Teaching Diploma, is to prepare future teachers who are academically, and personally, qualified to promote LAU as a first class institution, and to demonstrate leadership in their places of employment.

Educational Objectives
The Teaching Diploma at LAU aims to prepare teachers who demonstrate:
A. Relevant Knowledge – This includes:
   > Depth and breadth in subject, and in content.
   > General pedagogical knowledge.
   > Specific pedagogical content knowledge.
   > An awareness of the professional standards.
   > An awareness of the developmentally appropriate practice.
   > An awareness of the curriculum objectives and standards.
B. Practical Skills
   > Diverse approaches to instruction, and assessment.
   > Motivational strategies.
   > Strategies to promote higher-level thinking.
C. Appropriate Attitude
   > Readiness to develop authentic relationships with students.
   > Readiness to establish a democratic and socially just, learning environment.
   > Readiness to reflect on one’s practice, and continuous learning.

Learning Outcomes
Graduates in the Teaching Diploma will be able to:
1. Distinguish the different theories of education, and understand their impact on the curriculum.
2. Develop clear and measurable instructional objectives.
3. Plan unit lessons, curricular materials, and activities for teaching.
4. Select and implement appropriate strategies for teaching specific subjects at the early, elementary, or secondary level.
5. Organize learning environments, and to implement theories of child guidance and behavioral management, so as to create positive classroom atmosphere.
6. Act as problem solvers, and make appropriate, and informed, decisions in teaching/learning situations using critical thinking, and analysis.
7. Plan strategies, and to prepare tools for assessing students’ achievement (formal as well as informal assessment).
8. Pursue professional development opportunities as life long learners.

The Program provides two options:
Teaching Diploma at the Elementary Level
Teaching Diploma at the Intermediate and Secondary Levels

The Teaching Diploma consists of 21 credits, to be taken, over and above, the Bachelor’s Degree requirements. These 21 credits may be taken in combination with the Bachelor’s Major courses, or as a post B.A./B.S. Program, in one academic year.

Required Courses for Elementary Level T.D.
EDU201 Fundamentals of Education 3
EDU202 Observation and Curriculum 3
EDU331 Educational Technology 3
EDU332 Educational Measurement 3

One course from the Practice Teaching – Elementary:
EDU420 Practice Teaching, Early Childhood Education 6
EDU421 Practice Teaching, Elementary 6
EDU422 Practice Teaching, Elementary Math & Science 6

One Methods course from the following (As recommended by the student’s advisor):
EDU312 TEFL 3
EDU313 The Teaching of Science and Math 3
EDU314 The Teaching of Social Studies 3
EDU414 Methods and Materials in ECE* 3
ART333 Art Education 3
MUS301 Music Education 3
COM337 Creative Dramatics 3

Required Courses for Intermediate and Secondary Level T.D.
EDU201 Fundamentals of Education 3
EDU202 Observation and Curriculum 3
EDU310 Computers in Education 3
EDU332 Educational Measurement 3

One course from the Practice Teaching – Secondary:
EDU425 Practice Teaching, Secondary Math Education 6
EDU426 Practice Teaching, Secondary Science Education 6
EDU427 Practice Teaching, Secondary English Education 6

One Methods Course from the following (As recommended by the student’s advisor):
EDU312 TEFL 3
EDU314 The Teaching of Social Studies 3
EDU315 The Teaching of Math-Intermediate & Secondary 3
EDU316 The Teaching of Science–Intermediate & Secondary 3
ART333 Art Education 3

* Required for ECE

PROGRAMS

BACHELOR OF SCIENCE DEGREE PROGRAMS

BACHELOR OF SCIENCE (B.S.) IN BIOLOGY

Biology is among the most diverse and exciting of the Sciences. It deals with the structure of the molecules essential for life, with the development and physiology of living organisms, and with the genetic structure of natural populations of organisms. Recent discoveries are enabling biologists to understand life at the molecular level. These findings promise to unleash knowledge that will affect health, nutrition, and the environment, in beneficial ways.

Mission
The Bachelor of Science in Biology Program is committed to academic excellence, and provides a solid foundation in the Biological Sciences in preparation for careers in Biology, Biotechnology, and related advanced studies in the Biomedical and Environmental Sciences, while maintaining the tradition of the liberal arts education.

Educational Objectives
The purpose of the Bachelor of Science in Biology is to:
1. Provide the foundation of a common core of Biology, and other supporting courses.
2. Provide access to advanced concepts and techniques in biological sciences.
3. Offer a variety of lecture and laboratory courses, to reflect the different aspects of biology.
4. Expose students to the recent trends in molecular biology, and biotechnology.
5. Give students significant opportunities for research experiences.
6. Prepare students interested in health-related fields, Graduate studies, and other associated professions.
Learning Outcomes
Graduates in the Bachelor of Science in Biology will:

1. Successfully show the acquisition of sufficient knowledge of the basic content of the biological sciences.
2. Successfully demonstrate the gaining of sufficient knowledge of the theoretical constructs of the biological sciences.
3. Successfully demonstrate the acquisition of adequate knowledge of the basic content of courses in statistics, computing, physics, and chemistry, which are required for an understanding of the biological sciences.
4. Demonstrate an adequate experience in lab and advanced research techniques.
5. Demonstrate significant research experience.
6. Show a critical thinking ability in the biological sciences, and other supporting fields.
7. Demonstrate a problem-solving ability in biological science, and other supporting fields.
8. Show an adequate preparation for careers in biological sciences, or entrance into Graduate or Professional study.
9. Successfully demonstrate effective written and oral communication of biological concepts.
10. Participate in, and be evaluated on, community service activities, drawn from adequate and varied opportunities, to use discipline-related information in the service to the campus, local community, and/or regional surroundings.

This Program is tailored not only to students planning to enter the M.S. or Ph.D. Programs, but also for Pre-Pharmacy, and Pre-Medical, students. It also prepares students for an eventual career in biology-related fields (e.g. pharmaceuticals, cosmetics or food processing industries, medical laboratories, etc.).

Laboratory courses are offered in a modern, well-equipped, multidisciplinary teaching laboratory. Several research facilities are available to students with independent research interests, in addition to those in the department of biology. Professors are always available to work closely with the students during their independent research and field studies. Also, the labs offer students, and faculty, a convenient site for intensive instruction, or access to web-based, and other software, materials.

The department has prepared a three-year study plan. Students are advised to observe the three-year plan carefully, to avoid any undue delay in graduation. Based on the proposed plan, students should be able to graduate in three years, including two Summer modules, and to complete all the requirements, including 38 credits in Biology and Biochemistry.

Biology (35 credits)
BIO201 General Biology I 4
BIO202 General Biology II 4
BIO311 Microbiology 3
BIO312 Microbiology Lab 1
BIO321 Genetics 3
BIO322 Genetics Lab 1
BIO331 Ecology 4
BIO343 Anatomy and Physiology 3
BIO344 Anatomy and Physiology Lab 1
BIO345 Cell and Molecular Biology 4
BIO499 Senior Study 3
BCH301 Introduction to Biochemistry 4

Biology Electives (6 credits)
Choose two Biology Elective courses
BIO401 Developmental Biology 3
BIO341 Plant Physiology 3
BIO 410 Biotechnology 3
BIO 420 Virology and Immunology 3

Programs
Chemistry (15 credits)
CHM201 Chemical Principles 3
CHM202 Analytical Chemistry 3
CHM204 Quantitative Analysis 2
CHM311 Organic Chemistry I 3
CHM313 Organic Chemistry I Lab 1
CHM312 Organic Chemistry II 3
CHM314 Organic Chemistry II Lab 1

Mathematics and Computer Science (7 credits)
MTH200 Mathematics for Life Sciences 3
STA205 Biostatistics 3
CSC201 Computer Literacy 1

Physics (8 credits)
PHY301 Classical Physics for Life Sciences 3
PHY302 Classical Physics for Life Sciences Lab 1
PHY305 Modern Physics for Life Sciences 3
PHY306 Modern Physics for Life Sciences Lab 1

Bachelor of Science (B.S.) in Chemistry
The Chemistry Program at LAU provides a high quality education, leading to a Bachelor of Science in Chemistry, covering the main chemistry disciplines, (analytical, organic, inorganic, and physical) as well as satisfying the basic chemical information needed in the other scientific programs, within the framework of a liberal arts program. Chemistry is also the “Central Discipline” needed in science-oriented programs: science education, engineering, pharmacy, biology and pre-medicine. The Chemistry Program is designed to prepare students for careers in chemical industry, medical and scientific laboratories, and the education sectors. In addition, it will allow B.S. holders to pursue their Graduate study in any chemistry discipline, chemical engineering, medicine or other health professions, as well as environmental science.

Mission
The Mission of the Bachelor of Science in Chemistry Program is to provide students with a rigorous education in the fundamental areas of chemistry. The Program offers theoretical, and practical, knowledge in chemistry, within the context of a liberal arts program, which will graduate well-rounded individuals who are prepared for careers in Chemistry, and/or Graduate studies, and who are conscious of their role as responsible citizens.

Educational Objectives
The purpose of the Bachelor of Science in Chemistry is to:
1. Provide students with a sound education in the fundamental concepts, and the practice of chemistry.
2. Offer a variety of courses (theoretical and experimental) to cover the fundamental areas of chemistry (analytical, organic, inorganic and physical).
3. Provide the necessary service courses for other departments that require chemistry, as an integral part of their curriculum.
4. Provide students with the ability to work effectively and safely, in a laboratory environment.
5. Provide students with sound management knowledge of the safe handling of chemicals, and hazardous material.
6. Provide students access to advance the modern instrumental, and analytical, techniques and applications.
7. Provide basic research methodology, data analysis, and interpretation.
8. Provide students with the ability to use computer technology for chemistry applications.
9. Provide students with the ability to work independently, as well as in groups.
10. Provide students with “on-site-application” of their knowledge, through a local internship (industry, hospitals and technical labs).
11. Prepare students for the job markets (locally and abroad) in: education, industry, hospitals, and governmental and environmental sectors.
12. Prepare students for postgraduate study in chemistry, chemical engineering, and medicine, as well as related sciences.
Learning Outcomes
Graduates in the Bachelor of Science in Chemistry Major must complete the following requirements.

Chemistry Requirements (41 credits)
- CHM201 Chemical Principles 3
- CHM202 Analytical Chemistry 3
- CHM203 Qualitative Analysis 2
- CHM204 Quantitative Analysis 2
- CHM311 Organic Chemistry I 3
- CHM312 Organic Chemistry I Lab 1
- CHM313 Organic Chemistry II 3
- CHM314 Organic Chemistry II Lab 1
- CHM331 Thermodynamics 3
- CHM332 Quantum Chemistry 3
- CHM333 Chemical Dynamics 3
- CHM334 Physical Chemistry Laboratory 2
- CHM421 Inorganic Chemistry I 3
- CHM422 Inorganic Chemistry II 3
- CHM499 Senior Study 3
- CHM401 Instrumental Analysis 3
- CHM411 Identification of Organic Compounds 3

Other Requirements
- MTH201 Calculus III 3
- STA202 Applied Statistics 3
- CSC242 Introduction to Computer Programming 3

Physics Requirements (7 credits)
- PHY201 Electricity and Magnetism 4
- PHY21 Introduction to Modern Physics 3

Free Electives (5 credits)

BACHELOR OF SCIENCE (B.S.) IN COMPUTER SCIENCE
Mission
The Mission of the Computer Science Program is to provide students with the ability to integrate the theory and practice of computing in the representation, processing, and use of information, while upholding the tradition of the liberal arts education.

Educational Objectives
The purpose of the Bachelor of Science in Computer Science is to:

1. Prepare students for the job market, locally and abroad, with business, industry, or government.
2. Prepare graduates to become software designers, systems analysts, programmers, and database administrators.
3. Enhance the Undergraduate computing education, learning, problem solving, and system design skills.
4. Introduce outreach and engagement, by allowing computer science faculty and students, to contribute to the community at large.
5. Enhance the cultural, social, legal, and ethical issues inherent in the discipline of computing.

Learning Outcomes
Graduates in the Bachelor of Science in Computer Science will be able to:

1. Develop fundamental problem solving skills, and learn programming techniques using modern languages.
2. Develop the necessary skills to understand, expand, and verify efficient, and correct, computing algorithms, and to understand the various algorithmic paradigms, complex computational and complexity analysis.
3. Gain a simulated understanding of the life cycle for software development including requirements elicitation, specification, prototyping, design, GUIs, implementation, testing and documentation.
4. Analyse the requirements, and develop effective database applications.
5. Develop fundamental mathematical skills, in order to solve complex and real-life problems.
6. Apply their computational and mathematical knowledge in order to solve problems.

Core Requirements (30 credits)
- CSC243 Introduction to Object Oriented Programming 3
- CSC245 Objects and Data Abstraction 3
- CSC310 Algorithms and Data Structures 3
- CSC320 Computer Organization 3
- CSC323 Digital Systems Design 3
- CSC326 Operating Systems 3
- CSC375 Database Management Systems 3
- CSC430 Computer Networks 3
- CSC490 Software Engineering 3
- CSC599 Capstone Project 3

7. Gain a good understanding of distributed computing, client-server computations, network programming, and administration.
8. Understand the ethical and social issues related to computing.
9. Have an understanding of the current trends in hardware technology, as well as future directions.
10. Understand the fundamental principles for human computer interface and design, and develop user interfaces in computing applications.
11. Learn to work effectively, and interactively, in teams and with (simulated and real) clients.
12. Learn how to effectively present, transmit, and communicate their work, written, as well as orally, to colleagues and to clients.
13. Acquire the skills for continued professional development.

The Program curriculum consists of a minimum of 92 credits. The Program requires students to complete Core Requirements that provide a sound mathematical and computer science foundation. In addition, students are required to take elective courses that provide advanced knowledge and skills.
PROGRAMS

Mathematics (12 credits)
MTH201 Calculus III 3
MTH207 Discrete Structures I 3
MTH305 Probability and Statistics 3
MTH307 Discrete Structures II 3

Mathematics Electives (3 credits)
MTH301 Linear Algebra 3
MTH303 Numerical Methods 3
MTH304 Differential Equations 3
MTH306 Non-Linear Dynamics and Chaos 3
MTH309 Graph Theory 3
MTH498 Topics in Mathematics (may be repeated) 3

Programming Electives – Choose five courses (15 credits)
CSC400 Advanced Object Oriented Programming 3
CSC443 Web Programming 3
CSC445 Programming Languages 3
CSC420 Computer Architecture 3
CSC435 Computer Security 3
CSC460 Artificial Intelligence 3
CSC498 Topics in Computer Science (may be repeated) 3

MINOR IN ACTUARIAL STUDIES
Objective
The objective of the Minor in Actuarial Studies is to provide students with the knowledge to work in the general area of actuarial science, mainly: life and health insurance, pension funds, and financial security.

Learning Outcomes
Graduates in the Minor in Actuarial Studies will attain the ability to:
1. Understand basic actuarial problems.
2. Mode term I basic actuarial problems using mathematical, probabilistic, and statistical methods.
4. Apply the concepts of actuarial science in solving problems related to financial security.
5. Understand the various applications of actuarial theory, such as assumption setting, actuarial standards of practice, the professional code of conduct, and effective communication.

The following courses totaling 21 credits are recommended for the Minor in Actuarial Sciences. This Minor can be taken by students from any Major.

Mathematical Requirements
MTH201 Calculus III 3
MTH305 Probability and Statistics 3

Business Requirements
ACC201 Accounting I 3
MTH310FIN321 Introduction to Insurance 3

Actuarial Mathematics Courses
MTH320 Applied Actuarial Statistics I 3
MTH402 Theory of Interest 3
MTH406 Life Contingencies I 3

BACHELOR OF SCIENCE (B.S.) IN GRAPHIC DESIGN
Mission
Graphic design communicates visually. It has the power to persuade, to inform, and to educate. The Mission of the Bachelor of Science in Graphic Design is to empower students to become effective visual communicators, through a liberal arts education. Through research, analysis, organization, and presentation skills, students will inform audiences using various forms of visual media.

Educational Objectives
1. The profession of Graphic Design is one that is in constant flux. The aim of the Program is to maintain a discipline, which is up-to-date in both technological and artistic innovations within the profession.
2. To encourage the creation of aesthetic, and effective, design solutions. Students may choose to work not only in print based media, but also on screen-based designs, which incorporate motion and sound. Emphasis is placed on communication skills, work ethics, and motivation.
3. To create works that are both ethically sound, and culturally aware, in turn, having a positive impact on their society and community. From record labels to road signs, film titles to beer bottles, textbooks to websites, students are capable of creating a diversity of professional-level designed materials.
4. Upon Graduation, to be competitive in numerous career opportunity options: design firms, advertising agencies, website developers, publishing companies, print houses, television studios, or the pursuit of independent design work.

Learning Outcomes
1. Promote specialist studies relevant to progression pathways for employment.
2. Provide knowledge and relevant skills as the toolkit for career progression.
3. Nurture students’ abilities in a specialist art and design discipline.
4. Enable students to develop personal qualities, linked to generic skills, for successful performance in the working life.
5. Promote a stimulating, supportive, and creative, learning environment in which students can maximize their potential as individuals.
6. Involve professional bodies and employers in the delivery of the programs, in order to maintain currency.
7. Offer learning experiences which foster independence of thought, and which encourage analytical and imaginative enquiry.
8. Nurture the designer’s obligation to their social and moral responsibilities.

The Graphic Design Program prepares accomplished graphic designers with critical minds to evaluate their own work.

The curriculum provides a comprehensive education in offering a range of theoretical, and practical, courses tackling various design experiences.

After having explored the visual principles of form, image, color, and typography, the students choose to either specialize in print or digital media.

The use of multilingual typography in layouts is studied, in depth, throughout the Program. Students develop custom Arabic typefaces for various applications in class.

During the Senior year, emphasis is placed on the design approaches in the final project, a challenging, self-defined experience that will help students define their professional interests. Conceptual thinking in creating visual systems, and information design, is the main focus of the final project. Students are required to complete an internship class which allows them to work for credits in a design studio of their choice, depending on their specific area of interest.

Graphic Design, a multi-faceted discipline, offers wide opportunities in working for advertising agencies, design studios, publishing houses, television production houses, or as freelancers designing websites, typefaces, animated sequences, interactive systems, packaging, identities, posters and exhibitions.
PROGRAMS

The Program curriculum consists of 34 credits for the Liberal Arts Curriculum Requirement, 30 credits for the Core, 32 credits for the Foundation Year requirements, and 19 credits for the Other Major requirements.

Graphic Design Core Requirements (30 credits)
ART222 Drawing II 3
ART324/431 History of Art or Modern Art 3
GRA301 Intermediate Computer Graphics 3
GRA302 Advanced Computer Graphics 3
GRA342 Art of Illustration 3
GRA351 Graphic Design I 3
GRA352 Graphic Design II 3
GRA432 Visual Perception 3
MKT201 Introduction to Marketing 3
GRA— GRA Elective 3

Foundation Year Requirements (32 credits)
GRA321 Design Studio I-A 3
GRA322 Design Studio I-B 3
GRA323 Design Studio II-A 3
GRA324 Design Studio II-B 3
GRA430 Sketching I 2
GRA431 Technical Graphics I 2
GRA451 Introduction Computer Graphics 3
GRA461 Introduction to Design 2
GRA271 History of Design 2
ART221 Drawing I 3
PHO211 Photography 3
ART— Art Elective 3

Other Major Requirements (19 credits)
Choose one from the following emphases:

I. Print Design
GRA312 Printing Variables 3
GRA411 Advanced Typography 3
GRA451 Graphic Design III 3
GRA452 Graphic Design IV 3
GRA455 Advertising Design 3
GRA462 Graphic Design Seminar 3
GRA490 Graphic Design Internship 1

II. Digital Design
GRA481 Digital Media Seminar 3
GRA482 Motion Design 3
GRA484 Web Design 3
GRA486 Advanced Interactive Design 3
GRA487 3D Animation Techniques 3
GRA490 Graphic Design Internship I 1
GRA499 Digital Media/Senior Study 3

MINOR IN GRAPHIC DESIGN

The Minor in Graphic Design is open to students in the Bachelor of Interior Architecture Program, to give them the additional skills that would allow them to deal with design tasks related to their profession and those that involve new media and computer related graphics.

Required Courses
GRA481 Digital Media Seminar 3
GRA482 Motion Design 3
GRA484 Web Design 3
GRA486 Advanced Interactive Design 3
GRA487 3D Animation Techniques 3
GRA490 Graphic Design Internship I 1
GRA499 Digital Media/Senior Study 3

The Program provides students with a sound foundation in mathematics, complemented with the education theories, and methodologies that answer to the needs and recommendations of the local, public, and private, schools in content and philosophy.

Educational Objectives

The Program provides students with a sound foundation in mathematics, complemented with the education theories, and methodologies that answer to the needs and recommendations of the local, public, and private, schools in content and philosophy.

Required Courses
GRA302 Advanced Computer Graphics 3
GRA312 Printing Variables 3
GRA411 Advanced Typography 3

Nine credits to be selected from the following courses:
GRA341 Art of Calligraphy 3
GRA342 Art of Illustration 3
GRA431 History of Graphic Design 3
GRA452 Graphic Design Seminar 3
GRA484 Web Design 3

BACHELOR OF SCIENCE (B.S.) IN MATHEMATICS EDUCATION

Mission
The Mission of the Mathematics Education Program is to prepare qualified and effective Mathematics educators to teach at all school levels, and to prepare students to pursue Graduate studies in the field. The Program offers its graduates a strong foundation in the liberal arts, and provides them with the ability to integrate educational theories in the teaching of mathematics.

Educational Objectives

The Program provides students with a sound foundation in mathematics, complemented with the education theories, and methodologies that answer to the needs and recommendations of the local, public, and private, schools in content and philosophy.

Educational Objectives

The Program provides students with a sound foundation in mathematics, complemented with the education theories, and methodologies that answer to the needs and recommendations of the local, public, and private, schools in content and philosophy.

Required Courses
GRA302 Advanced Computer Graphics 3
GRA312 Printing Variables 3
GRA411 Advanced Typography 3

Nine credits to be selected from the following courses:
GRA341 Art of Calligraphy 3
GRA342 Art of Illustration 3
GRA431 History of Graphic Design 3
GRA452 Graphic Design Seminar 3
GRA484 Web Design 3

1. Be able to apply mathematical methods to science-related fields, as well as to real life situations.
2. Gain an expertise in solving mathematical problems, and in using Information Technology, primarily specialized mathematical software for teaching and research purposes.
3. Be able to develop mathematics curricula for schools, and to plan academic units, lesson plans, and activities, for teaching math at all school levels.
4. Be able to select, implement, appropriate strategies for teaching specific mathematical topics.
5. Be able to adapt the methods and tools for assessing students’ achievement in mathematics.
6. Be able to develop mathematics curricula for schools, and to plan academic units, lesson plans, and activities, for teaching math at all school levels.
7. Be able to pursue professional development opportunities and/or higher-level studies in Math Education as lifelong learners.
8. Have contacts with schools and teachers, courses including enrichment courses, and other professionals, and through field experiences that include teaching practice.
Learning Outcomes

Graduates of the Mathematics Education Program have the necessary skills, and attitudes, that enable them to meet the challenges of their profession with creativity, self-reliance, critical thinking, and responsibility.

Graduates of the program will:
1. Have a mathematical strength that is grounded in the ability to reason mathematically, both formally and informally, to solve challenging problems by building, and/or using, appropriate mathematical structures.
2. Have the skills to communicate effectively, and persuasively, their mathematical thinking, in both written and oral forms.
3. Have an appreciation for, mathematical rigor, and mathematical inquiry.
4. Be able to encourage, and guide, the development of mathematical communication, in their own (future) classrooms.
5. Recognize, through their own experiences of learning mathematics, how they, and others, have built and utilized the rich connections among mathematical ideas: they will emphasize in their own classrooms, with their own students, the importance of building useful, connected understandings.
6. Use various ways of representing mathematical ideas, including verbal, graphical, numerical, and symbolic, to support and deepen mathematical understandings.
7. Adopt technology as an essential tool for thoughtfully teaching, learning, doing, and understanding, important mathematics.
8. Construct mathematical models to solve practical, and real life, problems.
9. Develop the ability to think logically, and critically, and to analyze information in a mathematical setting. Develop the ability to teach students how to reformulate, and solve, problems in an abstract framework.
10. Design positive, and effective learning environments in their classrooms.

The Mathematics Education Program requires a total number of 51 credits: 24 in Mathematics and 21 credits in Education. The remaining six credits are to be taken from Computer Science. Furthermore, students can opt to do a Teaching Diploma, which consists of 18 credits, to be taken over and above the Bachelor’s Degree requirements.

Mathematics (24 credits)
- MTH201 Calculus III
- MTH207 Discrete Structures I
- MTH301 Linear Algebra
- MTH302 Geometry
- MTH303 Numerical Methods
- MTH305 Probability and Statistics
- MTH311 Abstract Algebra
- MTH499 Mathematics Senior Study

Education (21 credits)
- EDU201 Fundamentals of Education
- EDU202 Observation and Curriculum
- EDU310 Computers in Education
- EDU315 The Teaching of Mathematics in Intermediate and Secondary Schools
- EDU322 Educational Measurement
- EDU425 Practice Teaching – Secondary
- Math Education

Computer Science (6 credits)
- CSC241 Introduction to Computing
- CSC243 Introduction to Object Oriented Programming

MASTER OF ARTS DEGREE PROGRAMS

M.A. IN COMPARATIVE LITERATURE

Mission
The Mission of the Graduate Program in Comparative Literature is to teach, train, and conduct research in literature and transcultural studies, in addition to translation, with special attention to the Middle East in general. The Program offers coursework in English, Arabic, Persian, and French, in response to the students’ needs and capacities. The aim is to explore the role of culture in a multi-ethnic globalizing world.

Educational Objectives
The purpose of the Graduate Program in Comparative Literature is:
1. Offer students linguistic and cultural training in more than one cultural zone.
2. Offer students a highly individualized curriculum, through close cooperation with other disciplines in the humanities, arts, and social sciences.
3. Allow students to acquire an exceptional degree of expertise in regional intercultural relations, and a broadened perspective on the variety, and complexity, of the Middle Eastern cultures, combined with advanced training in critical, and poststructuralist, theories.
4. Explore a range of literary, and cultural, theories, and demonstrate significant mastery of one or two.
5. Achieve broad intercultural competence in genre, period, and theme.
6. Receive advanced training in written, and oral, communication through working with experienced researchers.

Learning Outcomes
Graduate students in Comparative Literature will be able to:
1. Develop a high level of complexity and specialization in methodology, theory, periods, themes, and literary genres, that constitute the framework within which students can pursue their study and research.
2. Develop the skills to teach, train, and to conduct research in literature, and transcultural studies, with special attention to the Middle East in general.
3. Acquire an exceptional degree of expertise in regional intercultural relations.
4. Obtain advanced standing in secondary school teaching, work as a literary translator, or work as a specialist in literature and culture, for the press, for international publishers, in diplomacy, and in international organizations.
5. Acquire the knowledge, and the skills, which qualify them to pursue their education in the field at a Ph.D. level.

Comparative literature is the critical study of texts in two or more languages. Practitioners most often describe their work as the interdisciplinary study of literature, and other cultural productions, across national, ethnic, and linguistic boundaries. Periods, genres, themes, movements, and cross-cultural influences are among the objects of study. Comparatists draw their methods from the literary tradition, as well as from other fields of the humanities and the sciences.

The Mission of the Program in Comparative Literature at LAU is to provide instruction, and to conduct research, in literature, cultural criticism, and translation, with special attention to Lebanon and the Middle East. The aim is to explore the role of culture in a multiethnic globalizing world.

Advanced training is offered in three areas of study:
- Literature and other cultural productions. Students will achieve broad intercultural competence in genre, period, and theme.
- Theoretical frameworks. Students will explore a range of literary and cultural theories, and demonstrate significant mastery of one or two.
- Research methods and written and oral expression. Students will work with experienced researchers in a variety of media, and receive advanced training in written and oral communication.
PROGRAMS

Graduates of the M.A. Program in Comparative Literature can pursue several career options:

- Enter a Ph.D. Program in literature or comparative studies.
- Obtain advanced standing in secondary school teaching.
- Work as literary translators.
- Work as specialists in literature, and culture for the press, in publishing, in diplomacy, or in business.

Graduate students in Comparative Literature complete 33 credit hours of coursework in three areas:

A. Eighteen credits of core courses:
   - CLT801 Methodologies of Comparative Literature
   - CLT803 Literary Theory I
   - CLT804 Literary Theory II
   - CLT820 Period
   - CLT830 Themes
   - CLT840 Genre

B. Nine credits of coursework in one of the following:
   1. A national literature and culture
   2. A non-literature cognate (graduate-level courses in a field of interest such as anthropology, film, history, music, philosophy, psychology, etc.).
   3. Literary translation

C. A written comprehensive exam, and a six-credit Master’s Thesis.

M.A. IN EDUCATION

The educational sector in Lebanon is witnessing an active movement of reform. The development of new curricula has raised debates, and elicited questions about professional practices and development. The education reforms have also brought about new and redefine jobs.

Mission

The Mission of the M.A. Program in Education is to respond to the educational change, and to fulfill the needs created by educational reforms. The Program prepare qualified professionals in the field of Education who can assume leadership positions in schools, and educational institutions, as well as promote change and innovations, guide and mentor teachers, and develop their knowledge and skills in a life-long learning process.

Educational Objectives

The M.A. Program in Education provides knowledge, practical training, and continuous updating, on technological developments, and challenging opportunities, for those interested in working in school settings, educational institutions, community centers, educational research, and development.

The Program’s various specialty areas provide students with the opportunity to become qualified subject coordinators, supervisors, officers for teacher professional development; curriculum specialists, school administrators, or school counselors.

Learning Outcomes

As a result of their work in the Program, students will be able to:

1. Identify major political, social, psychological, and philosophical foundations of education and curricula.
2. Recognize, compare, and contrast, major instructional theories and approaches.
3. Evaluate and develop curricula, and curriculum materials, for specific content, or for special groups of students.
4. Use technology efficiently in performing instructional, and educational, tasks and promote its informed use.
5. Set and implement plans for educational professional development.
6. Design, conduct, and evaluate, educational research.
7. Reflect on research results, and evaluate their implications on educational practices.

Requirements

A student may choose one of two tracks: General Professional Development, or a Specialist Area. In total, students have to accumulate 30 credits at the Master’s level. The Program comprises four blocks:

I. Core Education Courses (12 credits)
   - EDU802 Curriculum Design
   - EDU803 Methods of Educational Research
   - EDU806 Advanced Educational Psychology

II. Electives (3 credits)
   - EDU812 Literacies across the Curriculum
   - EDU814 Comparative Education
   - EDU899 Thesis in Education (6 credits)

Choose the General Professional Development Track or one of the Areas under Specialist Area Track (12 credits)

General Professional Development Track (12 credits)
   - EDU805 Educational Technology
   - EDU825 Mathematical Language,
   - EDU862 Trends and Issues in Science Education

Specialist Area Track (12 credits)
   - EDU872 Special Education
   - EDU885 Multilingualism in Education

Specialist Area Track (12 credits)
   - A. Specialist 1: Educational Management (9 credits)
     - EDU832 Leading and Managing Schools/ Educational Institutions
     - EDU833 Issues and Trends in Educational Management
     - EDU837 Practicum in Educational Management
   - B. Specialist 2: TESOL (9 credits)
     - EDU852 Trends and Issues in TESOL
     - EDU853 Sociolinguistics and Social Context of Language
     - EDU857 Discourse and Materials Development

C. Specialist 3: Mathematics Education (9 credits)
   - EDU822 Trends and Issues in Mathematics Education
   - EDU823 Technology in Mathematics Education
   - EDU825 Mathematical Language, Representations and Modeling
   - EDU865 Multilingualism in Education

D. Specialist 4: Science Education (9 credits)
   - EDU862 Trends and Issues in Science Education
   - EDU863 Technology in Science Education
   - EDU899 Thesis in Education (6 credits)

E. Specialist 5: Early and Middle Childhood Education (9 credits)
   - EDU825 Leading and Managing Schools/
   - EDU885 Counseling Children and Adolescents in School Setting
   - EDU887 Practicum in School Counseling

F. Specialist 6: Special Education (9 credits)
   - EDU875 Dyslexia and Reading Difficulties
   - EDU876 Teaching Students with LD
   - EDU877 Special Education Practicum

G. Specialist 7: School Counseling (9 credits)
   - EDU883 Counseling Theories and Techniques
   - EDU885 Counseling Children and Adolescents in School Setting
   - EDU887 Practicum in School Counseling

Research Work (6 credits)

Students may choose one of the following two options:

Option 1:
   - EDU898 Project in Education (3 credits) + one elective course (3 credits)

Option 2:
   - EDU899 Thesis in Education (6 credits)
PROGRAMS

M.A. IN INTERNATIONAL AFFAIRS

Mission
Basing itself on the University’ Mission, and building on LAU’s Bachelor of Arts Programs in Political Science and Political Science – International Affairs, the M.A. Program in International Affairs provides students with an advanced comprehension of the main theoretical approaches, methodologies, and issues in international affairs.

Educational Objectives
The purpose of the M.A. in International Affairs Program is to:
1. Prepare graduates for Ph.D. work at reputable institutions of higher learning, mainly in the United States, Canada, and Western Europe.
2. Prepare graduates for careers in diplomacy, especially at the Lebanese Foreign Ministry, and the United Nations, and other professional careers at international, regional, and local governmental and non-governmental organizations, particularly organizations that focus on the development of civil society, as well as those that tackle developmental issues.

Learning Outcomes
Graduates in the M.A. in International Affairs Program will:
1. Acquire the necessary analytical and writing skills to be able to produce quality research papers, and one capstone Research Project (i.e. Thesis).
2. Develop higher level research, and critical thinking skills.
3. Enhance their skills in diplomacy, negotiations, and bargaining, as well as in the techniques of conflict resolution.
4. Acquire the necessary communication skills to be able to convey, persuasively, complex arguments and points of view to different cohorts, namely diplomats, other government functionaries, and the media.

INA811 Theories of International Affairs
INA899 Thesis

Choose 7 courses from the following:
INA812 Foreign Policy Analysis
INA813 Topics in International Relations
INA814 Topics in Middle East International Relations
INA815 Topics in International Organizations
INA821 Diplomacy and Bargaining
INA831 International Political Economy
INA841 Private International Law
INA842 Topics in International Law
INA851 International Conflict and Conflict Resolution

Students need 30 credits for the Major (nine for the Core and 21 for Other Requirements).

M.S. IN COMPUTER SCIENCE

Mission
The Mission of the Computer Science Program is to provide students with the ability to integrate the theory and practice of computing in the representation, the processing, and the use of information, while upholding the tradition of the liberal arts education.

Educational Objectives
The purpose of the M.S. in Computer Science Program is to:
1. Prepare students for advanced Graduate education.
2. Prepare students to be innovative leaders in their profession at the local, regional, and international level.
3. Enhance research and discovery.
4. Introduce outreach and engagement, by allowing computer science faculty, and students, to contribute to the community at large.

INA811 Theories of International Affairs
INA899 Thesis

Choose 7 courses from the following:
CSC711 Design and Analysis of Algorithms
CSC712 Automata Theory and Formal Languages
CSC713 Bioinformatics
CSC714 Heuristic Optimization
CSC715 Machine Learning
CSC716 Cryptography and Data Security
CSC721 Transaction Processing Systems
CSC722 Distributed Systems
CSC723 Knowledge-Based Systems
CSC724 Data Mining
CSC725 System Simulation
CSC726 Compilers
CSC731 High Performance Computer Architecture
CSC732 ULSI Testing
CSC733 Embedded Systems
CSC734 Advanced Computer Networks
CSC735 Mobile Computing and Networks
CSC736 Networks Security

Students need 30 credits for the Major (12 credits for the Core, one course from each area, three credits for the Project, or six credits for the Thesis, and 12 or 15 credits for the electives). These credits are distributed as follows:

I. Core requirements (12 credits)
- Four-three credit courses: one from each of the four concentration areas listed below CSC711 Design and Analysis of Algorithms is mandatory from the first area.

II. Project or thesis option (3 or 6 credits)
CSC798 Project Option
CSC799 Thesis Option

III. Electives from four concentration areas (12 or 15 credits)
A. Algorithms, Theory and Computational Science
CSC711 Design and Analysis of Algorithms
CSC712 Automata Theory and Formal Languages
CSC713 Bioinformatics
CSC714 Heuristic Optimization
CSC715 Machine Learning
CSC716 Cryptography and Data Security

B. Systems
CSC721 Transaction Processing Systems
CSC722 Distributed Systems
CSC723 Knowledge-Based Systems
CSC724 Data Mining
CSC725 System Simulation
CSC726 Compilers

C. Hardware and Networks
CSC731 High Performance Computer Architecture
CSC732 ULSI Testing
CSC733 Embedded Systems
CSC734 Advanced Computer Networks
CSC735 Mobile Computing and Networks
CSC736 Networks Security
Learning Outcomes
Graduates in the M.S. in Molecular Biology will be able to:

1. Choose appropriate experimental strategy for research in basic and molecular biology.
2. Collect, quantify, summarize, interpret, and present biological data.
3. Perform laboratory techniques in basic biology, molecular biology, and biotechnology (protein purification, centrifugation, chromatography, ELISA, gel electrophoresis, DNA purification, PCR based methods, methods for introduction of genes in cloning vectors, DNA fingerprinting, analysis of DNA sequence information with bioinformatics tools, immunodetection, etc...).
4. Use computers, and other available technology, in the study of molecular biology.
5. Use the library databases, and access the Internet, to conduct literature searches to complete the required class Project and Thesis.
6. Explain and integrate biological principles, as applied to basic and molecular biology.
7. Show a fundamental body of knowledge in basic and molecular biology.
8. Develop a strong diversified background in modern biology, appropriate to the individual student goals.
9. Develop critical-thinking, and problem based learning skills.
10. Develop the ability to communicate scientific ideas in both written, and oral, formats.
11. Understand the current trends in molecular and genetic research, and critically appraise published work.
12. Demonstrate an ability to design, undertake, and interpret, a research project, presented in the form of a dissertation.

In support of these Objectives, LAU has established the “Genomics and Proteomics Research Unit” which will expand student research potentials.
COURSE DESCRIPTIONS

ARABIC STUDIES

ARA101 & 102 Essay Reading and Writing [3-0, 3 cr.]
This course concentrates on essay reading and writing. It includes a thorough study of the essay, its development, and its various types. Readings illustrating different types of essays will be used for literary analysis, and written exercises, in précis and essay writing. This course will include a systematic review of the grammar rules, and their application, as well as some training in speech, discussion, and interpretive reading.

ARA201 Appreciation of Arabic Literature [3-0, 3 cr.]
This course is divided into two parts. First, the theoretical part, which deals with the essential characteristics of literature, as well as literary themes, schools, and genres, and second, the practical part, which includes the intensive analysis of selected excerpts illustrating important literary forms, and trends.

ARA301 Advanced Arabic Grammar [3-0, 3 cr.]
This course covers the fundamental principles of the Arabic language, and deals with the grammatical and syntactic mistakes commonly made by students in writing. It includes written exercises.

ARA302 Arabic Rhetoric [3-0, 3 cr.]
This course includes the main forms of rhetoric, and their application in ancient, and modern, poetry and prose. It includes written exercises in rhetorical and literary analysis.

ARA321 Creative Writing [3-0, 3 cr.]
This course seeks to train students to write correctly in Arabic, in several styles, especially the styles that are proper to literature and the mass media.

ARA322 Principles of Translation [3-0, 3 cr.]
This course deals with the principles of translation, and the translation from English into Arabic, and vice versa.

ARA332 Ancient Arabic Literature [3-0, 3 cr.]
This course covers the representative authors of pre-Islamic, Omayyad and Abbasid periods. Extracts from their main works in poetry and prose are read, and analyzed.

ARA333 New Trends in Modern Literature [3-0, 3 cr.]
This course studies the intellectual background of modern and contemporary Arabic prose, and poetry, analyzing chosen texts by the leading authors.

ARA341 Modern Arabic Novel & Short Story [3-0, 3 cr.]
This course traces the origin of fiction in ancient Arabic literature, and the development of the modern Arabic novel, and short story, in the 20th Century. Works by representative authors are analyzed.

ARA342 Arabic Drama [3-0, 3 cr.]
This course is an introduction to the principles of dramatic art, its evolution from classicism to romanticism and modern trends, as well as its development in the Arab world in the 19th and 20th Centuries, through the study of representative authors in the field.

BIOCHEMISTRY

BCH301 Biochemistry [4-0, 4 cr.]
This course covers the study of modern biochemistry concepts in the regulation of the metabolism of carbohydrates, lipids, proteins, and nucleic acids. Enzymes and coenzymes will also be discussed.

Prerequisite: BIO201 Biology I, and BIO202 Biology II.
Pre or Co-requisite: CHM312 Organic Chemistry.

BIOLOGY (UNDERGRADUATE)

BIO101 Introduction to Biological Science [3-3, 4 cr.]
This course covers the general biology for Arts’ students. It is a simplified presentation of the basic biological concepts, with emphasis on the human biology. Arts’ students may choose the BIO201-202 bi-semester sequential course, after seeking the approval of the advisor, and the course’s instructor.

BIO201 General Biology I [3-3, 4 cr.]
This course is an introductory, yet comprehensive, study of the chemical, cellular, and the tissue organization of life, the transfer of energy through living systems, the expression of genetic information, essential microbiology principles, as well as a discussion of the major characteristics of viruses, bacteria, fungi, protists, and plants.

BIO202 General Biology II [3-3, 4 cr.]
This course is an introduction to the classification of the Animal Kingdom, and an in depth discussion of animals and plants, with particular emphasis on the study, and a comparison, of structures and functions, and of tissues and the organ system, all within the context of diversity of life as shaped by evolution.

Prerequisite: BIO201 General Biology I.

BIO311 Microbiology [3-0, 3 cr.]
This is a course intended for the Biology Major, and covers principles of microbiology, and the impact these organisms have on man and the environment. Topics include the history of microbiology, a survey of the different types of microorganisms, prokaryotic cell structure and function, microbial nutrition and growth, control of microorganisms and microbial metabolism, physiology, genetics, interaction of microorganisms with other forms of life, role of microorganisms in disease, immunity, and other selected applied areas.

Prerequisite: BIO201 General Biology I.

BIO312 Microbiology Lab [0-3, 1 cr.]
This course explores the ubiquitous nature of microbes. The overall objective is to implement exercises which allow students to obtain a hands-on experience in many of the microbiological techniques routinely employed, with emphasis on the methodological, and clinical, relevance of the procedures. Students connect theoretical lectures to the practical applications in medicine, environment, and other related fields.

Prerequisite: BIO311 General Biology I.
Pre-or Co-requisite: BIO 311
COURSE DESCRIPTIONS

BIO321 Genetics [3-0, 3 cr.]
This course is a study of the factors governing heredity, and variation, in plants and animals, on the classical and modern levels, with an emphasis on molecular and microbial genetics, and an introduction to recombinant DNA technology.
Prerequisites: BIO201 General Biology I, and BIO202 General Biology II.

BIO322 Genetics Lab [0-3, 1 cr.]
This course familiarizes students with topics ranging from DNA structure and organization, to cellular division, through meiosis and mitosis, and karyotype analysis. Students will acquire a hands-on laboratory experience in Mendelian genetics, by performing experiments with Drosophila melanogaster and Zea mays. It also includes problem solving sessions in Mendelian and non-Mendelian population, and in bacterial and yeast genetics that will help the students to understand the theoretical portion of the course.
Pre or Co-requisite: BIO321 Genetics.

BIO331 Ecology [3-3, 4 cr.]
This course covers the study of the relationships between living organisms and their environment. Major concepts related to the structure, function, organization, and regulation, at various levels (population community, ecosystems, and biomes), are covered via theory, laboratory work, and field trips.
Prerequisites: BIO201 General Biology I, and BIO202 General Biology II.

BIO341 Plant Physiology [3-0, 3 cr.]
This course covers the study of fundamental processes underlying survival, growth development, and normal functions of plants, with special emphasis on photosynthesis, respiration, mineral nutrition, water absorption and transpiration, translocation of solutes, hormonal control, and development.
Prerequisites: BIO202 General Biology II, and CHM312 Organic Chemistry II.

BIO343 Anatomy and Physiology [3-0, 3 cr.]
This course entails an anatomical, and physiological, approach to the study of the cardiovascular, nervous, endocrine, muscular, respiratory, excretory, digestive, and reproductive systems, with emphasis on homeostasis.
Prerequisites: BIO201 General Biology I, and BIO202 General Biology II.

BIO344 Anatomy and Physiology Lab [0-3, 1 cr.]
This course includes experimental activities designed to enhance students’ ability to both visualize anatomical structures, and to understand most physiological topics. All laboratory sessions focus on human and other higher vertebrates.
Pre or Co-requisite: BIO343.

BIO345 Cell and Molecular Biology [3-3, 4 cr.]
This course is an integration of the approaches of cytology, biochemistry, genetics, and physiology, to provide a comprehensive understanding of the operation of cells as units of structure and function in living organisms.
Prerequisites: BIO202 Biology II, BIO343 Anatomy and Physiology, and CHM312 Organic Chemistry II, or the consent of the instructor.

COURSE DESCRIPTIONS

BIO401 Developmental Biology [3-0, 3 cr.]
This course covers the study of developmental processes and principles operating during embryogenesis, from gamete formation to morphological and biochemical differentiation of various organ systems.
Prerequisites: BCH301 Introduction to Biochemistry, and BIO321 Genetics.

BIO410 Biotechnology [2-3, 3 cr.]
This course will examine all the biological principles underlying current biotechnology in the fields of human genetics, and genetic engineering; Methods of basic scientific research, the impact of technology on society, and the ethical problems in human genetics, will be explored. Topics include gene structure, function, expression, and manipulation in both the prokaryotes and eukaryotes principles of recombinant DNA technology, microbial biotechnology, animal and plant biotechnology, medical biotechnology, DNA profiling, forensics, and the regulation of biotechnology and patenting.
Prerequisite: BIO201 General Biology I.

BIO420 Virology and Immunology [2-3, 3 cr.]
This course provides an introduction to the immune response, the cells and tissues of the lymphoid system, lymphocyte activation and specificity, humoral and cell-mediated immunity, the concept of immunity to diseases, and immunodeficiency, and AIDS autoimmune diseases and transplantation. It examines the interactions between pathogens and host defense mechanisms (innate and specific immunity), as well as the problems in pathogenesis. The student will be also exposed to the principles of virology, with topics covering the fundamental properties of viruses, including their structure, replication, molecular biology, pathogenesis, epidemiology, and the medical importance of major virus groups and their interaction with host cells.
Prerequisite: BIO201 General Biology I.

BIO499 Senior Study [3-3, 3 cr.]
This course is designed to teach research methods, including a survey of literature on a problem in biology, a laboratory investigation of some phase of it, and its presentation in a paper.
Prerequisite: Senior Standing.
\section*{BIOLOGY (GRADUATE)}

\textbf{BIO805 Protein Research Methods} [1-6, 3 cr.]

This course is a laboratory course in molecular biology. The course aims at familiarizing students with the basic techniques currently used in this field, and supplies them with the necessary tools to carry on independent research that is needed for their Master’s Thesis. Techniques include protein isolation and purification, protein handling and quantification, gel electrophoresis, western immunoblot, ELISA, column chromatography (gel filtration, ion exchange chromatography, and affinity chromatography), HPLC, GCMS, NMR, and lipoprotein separation, using density gradient ultracentrifugation, and other advanced laboratory techniques in protein research.

\textbf{BIO806 Research Methods II} [1-6, 3 cr.]

This course is a laboratory course in molecular biology which aims at familiarizing students with the basic techniques currently used in this field, and supplies them with the necessary tools to carry on independent research needed for their Master’s Thesis. Techniques include DNA and RNA extraction, PCR, RT-PCR, southern blotting, DIG probe labeling, micro-satellite typing, DNA sequencing, DNA sub-cloning coupled with bacterial transformation, transcriptional expression techniques using galactosidase reporter gene assays, and identification of bacterial species using the Biolog® System.

\textbf{BIO820 Applied and Industrial Microbiology} [2-3, 3 cr.]

This course deals with industrial microorganisms and their application in the industrial process for the large scale production of antibiotics, vitamins, amino-acids, enzymes, and organic acids. It also deals with microbial bioconversions, and the production of food from microorganisms, sewage, and wastewater microbiology, as well as the applications of genetically engineered microorganisms to obtain novel products.

\textbf{BIO822 Advanced Molecular Biology} [3-0, 3 cr.]

This course emphasizes the principles and information which form the contemporary basis for molecular biology. The course covers the subjects of prokaryotic molecular genetics, RNA and DNA biosynthesis, protein biosynthesis, DNA recombination, regulation of gene expression, eukaryotic molecular genetics, RNA and DNA viruses, oncogenes, attenuation, global control, signal transduction, and two-component regulatory systems.

\textbf{BIO825 Diagnostic Microbiology and Immunology} [2-3, 3 cr.]

This course covers the biochemical, serological, and automated, methods used in the laboratory diagnosis of infectious diseases. The laboratory part of the course allows for a better understanding through application. Topics include the monoclonal antibody production, detection of fluorescent antibodies, enzyme-linked immunosorbent assay, radioimmunoassay, gas-liquid chromatography, high performance liquid chromatography, mass spectrometry, time-resolved immunofluorescence, nucleic acid probes in clinical diagnostics, and diagnostic virology and parasitology.

\textbf{BIO826 Advances in Cell Biology} [3-0, 3 cr.]

This course deals mainly with the most recent advancement in cell biology, i.e. stem cell research, and its applications in therapy. The course deals with embryonic stem cells, adult stem cells, and the umbilical cord stem cells. It discusses the potential fate of such cells, their molecular characteristics, and their isolation, culturing, and identification techniques. Stem cell application in animal and human tissue and organ repair, such as in the brain, heart, blood, and pancreas, are thoroughly investigated. Student presentations on the most recent case studies on stem cell applications are covered.

\textbf{BIO829 Endocrinology and Metabolism} [3-0, 3 cr.]

This course covers the study of biochemical messengers, integrators, and coordinators of general, developmental, and physiological processes with stress on metabolic mechanisms. It deals with biosynthesis, secretion, mechanisms of action and bioactivities of the hormones, as well as diagnostic technologies.

\textbf{BIO834 Environmental Health and Toxicology} [3-0, 3 cr.]

This course is an introduction to the methodology of practical control of the environmental factors that affect disease, disorders, and health. It deals with the physical environmental stresses, and relates to biological factors and vectors. It covers an overall view of the general principles of toxicology, environmental contamination, pollution, and their routes and pathways.

\textbf{BIO835 Microbial Pathogenesis} [3-0, 3 cr.]

This course focuses on model microbial systems, to comprehensively illustrate the mechanisms of microbial pathogenesis. It aims at providing a thorough understanding of bacterial physiology, host defense mechanisms, general principles of microbial pathogenesis, adhesion and invasion strategies, intracellular survival strategies, antibiotic resistance, and bacterial toxins.

\textbf{BIO841 Molecular Physiology} [3-0, 3 cr.]

This course is an in-depth consideration, and a theoretical analysis, of the physiological aspects of body organization, regulation, integration, maintenance, and continuity, with special emphasis on the modern application of knowledge in the domain of physiology, as related to the normal and upset homeostasis.

\textbf{BIO845 Diagnostic and Applied Physiology} [3-0, 3 cr.]

This course covers an in-depth application of molecular physiology, as utilized in a practical way to better understand, and approach, the physiology and diagnosis of diseases on one hand, and for practical analyses of research projects, as needed by the applicable physiological hypothesis, on the other.

\textbf{BIO848 Fungal Genetics and Pathogenicity} [3-0, 3 cr.]

This course introduces students to two important eukaryotic organisms: Candida Albicans, an opportunistic human fungal pathogen, and Saccharomyces Cerevisiae, a model eukaryotic organism easily amenable to modern genetic analysis. Topics to be covered include their life cycle, morphology, virulence, and pathogenicity, alongside the basic molecular mechanisms that govern them. The course will also feature a laboratory portion where students familiarize themselves with these two important microorganisms.
BIO850 Genomics and Proteomics [3-0, 3 cr.]
This course provides an in-depth introduction to using genome and proteome sequences to unravel problems of interest to biomedical researchers. Sessions include a combination of technical lectures, scientific testimonials, and hands-on solving problems, where students will be able to put the theoretical concepts into practice.

BIO852 Nutrition and Diet Therapy [3-0, 3 cr.]
This course is designed to provide the basics of human nutrition, and its relation to health. It covers all aspects of the macro and micro nutrients needed throughout the human life cycle. It also deals with the pathology, treatment, and nutritional therapy of acute and chronic diseases, nutrition and physical fitness, as well as other aspects of nutrition.

BIO881 Special Topics in Biology [3-0, 3 cr.]
This course covers the selected, recent, and contemporary, advances in the various applied fields of the biological sciences, and affiliated disciplines.

BIO888 Current Topics in Microbiology [3-0, 3 cr.]
This course will engage students, and foster discussion on the current research in the field of Microbiology. Participants will review and discuss research papers. In addition, each student will present two or three peer reviewed papers during the semester. Research topics will include, but are not limited to, virology, molecular biology, bacterial genetics, microbial ecology, and host-microbe interactions.

BIO899 Thesis [6 cr.]
As the Master of Science in Molecular Biology is considered a Research Degree, candidates must present a Thesis that should contain the original contributions to knowledge. The main purposes of a Master’s Thesis are to demonstrate the student’s ability to make independent use of information, and training, and to furnish objective evidence of constructive powers in a chosen field. The Thesis must show familiarity with previous work in the field, and must demonstrate the student’s ability to carry out research and organize results. The Thesis must be expressed in good, literate style.

CHEMISTRY

CHM101 General Chemistry [3-3, 4 cr.]
This course is an introduction to atomic structure, chemical bonding, gases, stoichiometry, aqueous solution, chemical kinetics, and chemical equilibrium.

CHM201 Chemical Principles [3-0, 3 cr.]
This course covers the principles and theories of atomic structure, chemical bonding, stoichiometry, mass spectrum, properties of gases, basic thermodynamics, kinetic theory, solid and liquid solutions, and ionic and chemical equilibrium in aqueous solutions.
Prerequisite: CHM101 General Chemistry or equivalent.

CHM202 Analytical Chemistry [3-0, 3 cr.]
This course is an introduction to the principles and methods of quantitative analysis of acid-base titration, and complexometric methods of analysis. Precipitation methods, potentiometric methods, solvent extraction, chromatography and polarography, spectroscopic analytical methods, and atomic elemental analysis, are covered.
Prerequisite: CHM201 Chemical Principles.

CHM203 Qualitative Analysis [0-4, 2 cr.]
This course is an introduction to experimental chemistry, emphasizing properties of gases, colligative properties, and qualitative chemical analysis.

CHM204 Quantitative Analysis [0-4, 2 cr.]
This course is an introduction to experimental chemistry that involves gravimetric, volumetric, and spectrophotometric methods, and techniques, used in quantitative chemical analysis.
Prerequisite: CHM201 Chemical Principles, or concurrently.

CHM311 Organic Chemistry I [3-0, 3 cr.]
This course is an introduction to the basic concepts of organic chemistry, with an emphasis on the relation between structure and properties. It also includes synthesis, properties and reactions of aliphatic and aromatic hydrocarbons, alky halides, alcohol, and ethers, with emphasis on mechanistic and stereo-chemical aspects of organic reactions.
Prerequisite: CHM201 Chemical Principles.

CHM312 Organic Chemistry II [3-0, 3 cr.]
This course covers in depth synthesis, properties, and reactions, of organic functional groups, including alcohols and ethers, aldehydes and ketones, carboxylic acids and derivatives, amines, phenols and aryl halides, carbohydrates and proteins, and organic structure determination by spectroscopic methods. Emphasis will be placed on reaction mechanism, and stereochemistry, as well as the design of multi-step synthesis.
Prerequisite: CHM311 Organic Chemistry I.

CHM313 Organic Chemistry I Lab [0-3, 1 cr.]
This laboratory course is designed to provide students with the basic skills for conducting organic reactions. The following techniques are learned: melting point, boiling point, simple, fractional and steam distillation, gravity and vacuum filtration, drying solids and liquids, extraction, evaporation, reflux, re-crystallization, gas chromatography, column chromatography, thin layer chromatography, and optical rotation.
Prerequisite: CHM311 Organic Chemistry or concurrently.

CHM314 Organic Chemistry II Lab [0-3, 1 cr.]
This course is an advanced organic chemistry laboratory course that utilizes the techniques learned in CHM313, in order to synthesize and study the properties and reactivity of functional groups. Nitrification of aromatic compounds, aldol condensation, Diels-Alder Reaction and Freidel Crafts acylation, in addition to synthesis of dyes and natural products, are among the experiments done in this laboratory.
Prerequisite: CHM312 Organic Chemistry II, or concurrently.

CHM331 Thermodynamics [3-0, 3 cr.]
This is a course that covers the basic principles of chemical thermodynamics including heat, work, and energy, the three laws of thermodynamics, and their application to chemical systems, and thermodynamics of solutions.
Prerequisites: MTH201 Calculus III, and CHM201 Chemical Principles.
CHM332 Quantum Chemistry [3-0, 3 cr.]
This is a course that covers quantum theory, postulates, Schrödinger equation of hydrogen, H+ and H2, atomic and molecular orbitals, Hückel approximation, and atomic and molecular spectra.
Prerequisites: CHM201 Chemical Principles, and MTH201 Calculus III.

CHM333 Chemical Dynamics [3-0, 3 cr.]
This course covers kinetic theory of gases, rate laws, mechanism, Bodenstein approximation, fast reactions, photochemistry, ion transport, reaction rate theories, and statistical thermodynamics.
Prerequisites: CHM201 Chemical Principles, and MTH201 Calculus III.

CHM334 Physical Chemistry Laboratory [0-4, 2 cr.]
This is a laboratory course that covers the principles and experimental techniques in thermodynamics, kinetic, and electrochemistry.
Prerequisites: CHM202 Analytical Chemistry.

CHM401 Instrumental Chemical Analysis [1-4, 3 cr.]
This course is an introduction to modern physical-chemical methods of analysis, with theoretical concepts of instrumentation and applications, including emission and absorption spectroscopy, nuclear magnetic resonance spectroscopy, and chromatography.
Prerequisites: CHM202 Analytical Chemistry, and CHM204 Quantitative Analysis.

CHM411 Identification of Organic Compounds [1-4, 3 cr.]
This course is a theoretical and practical study of the separation, and identification, of organic compounds by wet techniques, and spectrophotometric methods.
Prerequisite: CHM312 Organic Chemistry II, CHM314 Organic Chemistry II Lab.

CHM421 Inorganic Chemistry I [3-0, 3 cr.]
This course is a study of hydrogen-like orbitals, multi-electron atoms, ionic bonding and crystals, covalent bonding, electronegativity scales, hybridization, Bent rule, symmetry point groups, symmetry adapted orbitals, Berry pseudo-rotation, fluxional molecules, acids and bases, chemistry of the main group elements, and oxidation reduction reactions.
Prerequisite: CHM201 Chemical Principles.

CHM422 Inorganic Chemistry II [3-0, 3 cr.]
This course covers an in depth chemistry of coordination compounds, and organometallic compounds.
Prerequisites: CHM421 Inorganic Chemistry I.

CHM499 Senior Study [3-0, 3 cr.]
This course is designed to teach research methods. It includes work on a short novel research topic, and the presentation of the findings in a research paper.
Prerequisite: Senior Standing.

COMMUNICATION ARTS

COM210 Communication Media and Society [3-0, 3 cr.]
This course studies forms of communication, especially mass communication, as elements of cultural and social processes. It is interdisciplinary, drawing on a variety of theories and methods of media studies such as semiotics, linguistics, textual studies, philosophy, political economy, and cultural studies.
Co-requisite: ENG202 Sophomore Rhetoric.

COM213 Public Relations [3-0, cr.]
This course details the principles of public relations, PR ethics, corporate social responsibility, public affairs, promotional campaigns, and media relations.
Prerequisite: COM211 Introduction to Mass Communication.

COM214 News Writing and Reporting [3-0, cr.]
This course covers the principles of news gathering, writing, and judgment, for all the media: newspapers, magazines, wire services (news agencies), radio, TV. The course also covers the study of news sources, field work/assignments, research and interview techniques, and editing. The course involves writing assignments on the substance and styles of reporting.
Prerequisite: COM210 Communication Media & Society, or concurrently

COM215 Photomedia Production [3-0, 3 cr.]
This course covers conventional photography, and video/computer aspects of gathering, and processing, pictorial material for the print media, and television. Practical experience, through laboratory and field exercises, in creating and handling such material, is also covered.
Prerequisite: None (PHO211 Photography I or COM235 Television Production I would be helpful).

COM218 Arabic News Writing and Reporting [3-0, 3 cr.]
This course covers the principles of news gathering and writing for the Arabic-language media. It includes the different styles of writing for news agencies, newspapers, magazines, radio, TV, and editorials.
Prerequisite: ARA201 Appreciation of Arabic Literature or any equivalent Arabic course.

COM221 Arabic and International Media [3-0, 3 cr.]
This course covers the development, operation, and analysis of Arab and world communication systems. Problems of cross cultural communication, and the influence of new technologies, particularly satellite television and the Internet, on traditional societies, as well as the relationship between Arab and international communication and politics, are covered.
Prerequisite: COM210 Communication Media and Society.

COM222 Introduction to Radio/TV/Film [3-0, 3 cr.]
This course is a study of the basic techniques of radio, TV, and film, from their beginnings to the present. Familiarization with equipment and basic production procedures will be stressed.
COURSE DESCRIPTIONS

COM225 The Art of Film [3-0, 3 cr.]
This course is a study of the formal, and esthetic, fundamentals of the film medium. It covers the viewing and analysis of important films, in the development of this art.
Prerequisite: ENG202 Sophomore Rhetoric, and COM222 Introduction to Radio/TV/Film.

COM223 Studio Television Production [3-0, 3 cr.]
This course covers the theory, practice, and technical aspects of studio television production, including basic program types, such as news, talk shows, and commercials (studio and on location).
Prerequisite: COM222 Introduction to Radio/TV/Film.

COM226 Radio Production [3-0, 3 cr.]
This course covers radio production as a means of communication and influence. The basic principles and production techniques are studied.
Prerequisite: COM222 Introduction to Radio/TV/Film.

COM228 Drama Workshop [1-3, 3 cr.]
This course covers the various aspects of theatrical activities, including building, scenery, properties, lighting, costumes, design, construction, etc. This course can be taken more than once.

COM241 Introduction to Acting [3-0, 3 cr.]
This course is an introduction to the actor’s technique and the performer’s skills, exploring the elements necessary to begin training as an actor. The course focuses on the physical and vocal exercises, improvisations, and scene study.

COM242 Introduction to the Art of Theater [3-0, 3 cr.]
This course is an introduction to the theater, from its ancient origins to the present, its history, production, design, acting, direction, etc.
Prerequisite: ENG101 English I, can be taken concurrently.

COM244 Introduction to Technical Stagecraft [3-0, 3 cr.]
This course is an introduction to the visual aspects of theater production, including a survey of the principles and practices of theater organization and management, scene design, and stage mechanics.
Prerequisite: ENG102 English II, or the consent of the Instructor.

COM247 Theater in Performance [3-0, 3 cr.]
Students taking this course can earn credits by participating in the productions of plays in major roles as an actor, or as a technician under the direction of Faculty members.
Prerequisite: ENG102 English II, or the consent of the Instructor.

COM249 Theater in Lebanon & the Arab World [3-0, 3 cr.]
This course is an overview of the history of theater in Lebanon, and the Arab World, from Maroun Naccache to the present. The course involves a study of selected Arabic plays, in text and performance, as well as the emergence of theater companies, and the development of theater organizations and festivals.
Prerequisite: COM242 Introduction to the Art of Theater.

COM251 Interpersonal Communication [3-0, 3 cr.]
This course helps to increase students’ understanding, and implementation, of effective interpersonal communication behaviors. The course examines the basic verbal, and nonverbal, elements affecting communication among individuals, within the family, peer group, and work contexts. Topics include strategy development, relationship and conversation management, defensive communication, and cultural and gender issues in communication style.

COM255 Current Affairs in the Lebanese Media [3-0, 3 cr.]
This course is offered in Arabic, and taught by a visiting instructor who is a practicing journalist, or a political TV talk-show host. It surveys current, national, and/or international issues, making the headlines in Lebanon’s media. The course looks at the variety of ways different media treat these issues, and creates forums such as talk shows, news broadcasts, or short documentaries, where students report, analyze, and present, their contribution to the debate on these issues.

COM327 Journalism Workshop I [3-0, 3 cr.]
This course is an intensive, computer-assisted, writing-oriented, course in a laboratory setting. It covers re-writing wire service copy into straight news, as well as magazine articles, editorials, and features. It involves the production of three issues of a student newspaper.
Prerequisite: COM214 News Writing and Reporting.

COM328 Performance for TV & Film [3-0, 3 cr.]
This course involves the application of the principles of acting in performing for TV and film. It involves exercises in announcing, interviewing, and hosting TV programs, as well as performing in commercials, and acting in dramatic TV programs and films.

COM329 Media Law & Ethics [3-0, 3 cr.]
This course explores legal and ethical principles, case studies, and the historical development, of the mass media regulation in Lebanon. The course includes comparative regional, and international, perspectives, whereby the development of media law and ethics in Lebanon is compared to developments in the Arab world, the United States, and Europe.
Prerequisite: COM210 Communication Media and Society. Senior Standing, or the consent of the Instructor.

1 This is an elective course and may be offered at irregular intervals.
COURSE DESCRIPTIONS

COM332 Editing [3-0, 3 cr.]
This course covers the use of computer technology to edit video footage in creating documentary and dramatic TV programs.
Prerequisite: COM235 Studio TV Production.

COM335 Advanced TV Production [3-0, 3 cr.]
This course covers the advanced aesthetical aspects of TV production in the studio, and on location. The course emphasizes the planning, and directing, of documentaries and TV drama.
Prerequisite: COM235 Studio TV Production, and COM326 Script Writing.

COM337 Creative Dramatics [3-0, 3 cr.]
This course is a study of the principles and methods of developing original dramatizations with children. Observation of children’s classes in creative dramatics is included.
Prerequisite: ENG102 English II.

COM338 Oral Interpretation [3-0, 3 cr.]
This course covers the recreation of prose, poetry, and drama, through oral readings. The course emphasizes the principles and vocal techniques of reading aloud for an audience.
Prerequisite: Junior Standing.

COM342 Play Production I [3-0, 3 cr.]
This course covers the script and play analysis of various theatrical genres, and the principles and techniques of producing a theatrical performance. It involves exercises in staging selected scenes, and studying the structure and presentation of a one-act play.
Prerequisite: COM242 Introduction to the Art of Theatre.

COM343 Advanced Acting Techniques [3-0, 3 cr.]
This course covers the advanced scene study. It includes multiple scenes to clarify character development throughout a single script.
Prerequisite: COM241 Introduction to Acting.

COM351 Desktop Publishing [3-0, 3 cr.]
This course involves theory and exercises in editing, transferring, and merging of text, graphics, and photographs. It involves the use of computer programs to create, design, and print, various types of publications.
Prerequisite: Knowledge of computer operations, and the consent of the Instructor.

COM361 Broadcast Journalism [3-0, 3 cr.]
This course trains students in report writing while on assignment. It is an introduction to the equipment utilized at the different stages of production and transmission. The different aspects of producing news programs for broadcast media, including news gathering, writing, and reporting for radio and television, are covered.
Prerequisites: COM222 Introduction to Radio/TV/Film, and COM214 News Writing & Reporting.

COM422 Journalism Workshop II [3-0, 3 cr.]
This course is an intensive, computer-assisted, writing-oriented, course in a laboratory setting. It covers re-writing wire service copy into straight news, magazine articles, and features. As well, it covers writing LAU-related news briefs and features, taking photographs, and designing four issues of the student newspaper; the LAU Tribune.
Prerequisite: COM327 Journalism Workshop I.

COM424 Digital Images [3-0, 3 cr.]
This course is a survey of all the aspects of digital technology, such as multimedia, 2-D, 3-D animation, etc...
Prerequisites: COM222 Introduction to Radio/TV/Film.

COM426 Computer Animation [3-0, 3 cr.]
This course is an introduction to 2-D effects on Alias software.
Prerequisites: Senior Standing, and the consent of the Instructor.

COM427 Corporate Video/Film Production [3-0, 3 cr.]
This course covers the theory and production practices in creating and producing video/film documentary programs, for the use in business, industry, government, and education.
Prerequisite: COM235 Studio TV Production.

COM428 Film Making [3-0, 3 cr.]
This course covers the principles and techniques of motion picture film production. Under the guidance of the Instructor, the students will plan, write, direct, and produce, individual film projects.
Prerequisite: COM225 The Art of Film, and COM326 Script Writing.

COM442 Play Production II [3-0, 3 cr.]
This course is a study of the theatrical major movements. It covers the analysis of the structure of the three-act play, and involves the production of a full-length play.
Prerequisite: COM342 Play Production I.

COM451 Media Research Methods [2-0, 2 cr.]
This course introduces students to the major research methodologies, communication theories, and topics of study, within media research. Theories, models, and methods are applied toward the development of a research paper. Students examine qualitative, (mainly discourse analysis and semiotics) and quantitative (i.e., content analysis) methods of media research employed when studying the media.
Prerequisite: COM210 Communication Media and Society.

COM487 Topics in Drama and Theatre [3-0, 3 cr.]
This course explores ideas of form, convention, style, and context in drama and theatre. It focuses on the different dramaturgical and theatrical approaches to specified topics, theatre trends, or schools (Modern Drama, Postmodernism, Documentary Drama, Gender and Theatre, Popular Theatre …).
This course may be repeated if topics differ.
COMPARATIVE LITERATURE (CORE CURRICULUM)

CLT801 Methodologies of Comparative Literature [3 cr.]
This course introduces fundamental concepts and approaches of comparative practice. Its objective is to expose students to key debates in literary and cultural studies today, and to provide an overview of some of the methods currently used in the profession.

CLT803 Literary Theory I [3 cr.]
This course examines the theories of literature, and the representation from classical Greece and Rome, the Medieval Mediterranean, and the European Renaissance. It is organized according to major questions that have traditionally generated debate, and that continue to resonate in contemporary literary and cultural studies.

CLT804 Literary Theory II [3 cr.]
This course examines the theories of literature, and representation, from the Enlightenment to the present. The course is designed to provide an intellectual background for current theoretical debates in the profession.

CLT820 Periods [3 cr.]
This course explores the fundamental critical concepts related to periods, through the close attention to primary texts supplemented with theoretical readings. The aim of the course is to kindle awareness and interests in the history of literature.

CLT830 Themes [3 cr.]
This course explores particular themes through the close attention to primary texts, supplemented with theoretical readings. This broadly construed course is designed to allow the instructor, and students, an opportunity to explore thematic interests in some depth.

CLT840 Genre [3 cr.]
This course explores the fundamental critical concepts related to genre, through the close attention to primary texts, supplemented with theoretical readings. Rather than attempting to provide a synoptic view of the range of generic forms, the course is conceived with a priority on flexibility, so as to respond to the needs and interests of the instructor, and students alike.

CLT880 Graduate Seminar in Comparative Literature [3 cr.]
This course examines selected topics in comparative literature. This course is repeatable for up to nine credits, if the course content and topics differ.

CLT899 Thesis [6 cr.]
This course consists of a 40–50 page comparative study, written in consultation with the student’s M.A. Faculty Committee.
The course ensures that all students will acquire the basic internationally recognized computer proficiency skills. Teaching and learning will be hands-on, in a computer equipped classroom. The topics include the concepts of information technology, using the computer and its operating system and managing files, word processing, spreadsheets, and presentation software.

CSC241 Introduction to Computing [3-0, 3 cr.]
This course provides a lengthy first coverage where students would acquire a holistic understanding of computing, and an appreciation of technology’s impact on society. Topics include binary values and number systems, data representation, gates and circuits, computing components, problem solving and algorithm design, low-level and high-level programming languages, abstract data types and algorithms, operating systems, file systems and directories, information systems, artificial intelligence, simulation and other applications, computer networks, the world wide web, and limitations of computing.

CSC242 Introduction to Computer Programming [3-0, 3 cr.]
This course introduces students to the methods of solving business data processing problems, through the use of structured programming techniques in writing computer programs. Concepts include various methods of organizing and processing files, interactive and batch data entry, and logical manipulation of data, as well as on-line and printed output. Computer programs will be created, enhanced, and maintained, as part of a typical large business data processing system.

CSC243 Introduction to Object Oriented Programming [3-0, 3 cr.]
This course introduces the fundamental concepts, and techniques, of programming and problem solving, from an object-oriented perspective. Topics include the introduction to computer systems (hardware, software, compilation, execution), fundamental programming constructs, (variables, primitive data types, expressions, assignment), program readability, simple I/O, conditional constructs, iterative control structures, structured decomposition, method call and parameter passing, basic program design using algorithms, algorithm step-wise refinement, pseudo-code, activity diagrams, introduction to the object-oriented paradigm (abstraction, objects, classes, entity and application classes, class libraries, methods, encapsulation, class interaction, aggregation), inheritance, polymorphism, error types, simple testing and debugging, 1-D and 2-D arrays, basic searching, and sorting algorithms.

CSC245 Objects and Data Abstraction [3-0, 3 cr.]
This course presents further techniques of object oriented programming and problem solving, with emphasis on abstraction and data structures. Topics include the object oriented concepts, such as: composition, inheritance, polymorphism and text files, the basic program design and correctness, such as: abstract data types, interfaces, information hiding, preconditions and postconditions, assertions and loop invariants, testing, basic exception handling, and the application of algorithm design techniques to a medium-sized project. The course also covers the basic algorithmic analysis, time and space tradeoffs in algorithms, big-O notation, fundamental data structures and applications, such as: references, single and double-linked structures, implementation strategies for stacks, queues, graphs, and trees, and performance issues for data structures, as well as the topics of recursion, more sorting algorithms.

Prerequisite: CSC243 Introduction to Object Oriented Programming.

CSC310 Algorithms and Data Structures [3-0, 3 cr.]
This course presents the fundamental computing algorithms and data structures, with emphasis on design and analysis. Topics include the asymptotic analysis of upper and average complexity bounds, the best, the average, and the worst, case behaviors, the big-O, little-o, and E notation, as well as the recurrence relations, sets, hashing and hash tables, trees and binary trees (properties, tree traversal algorithms), heaps, priority queues, and graphs (representation, depth and breadth-first traversals and applications, shortest-path algorithms, transitive closure, topological sort). The course also covers the sorting algorithms and performance analysis which include merge sort, quick sort and heapsort. As well, the course details the fundamental algorithmic strategies (divide-and-conquer approach, greedy, and recursive backtracking).

Prerequisites: MTH201 Calculus III, MTH207 Discrete Structures I, and CSC245 Objects and Data Abstraction.

CSC320 Computer Organization [3-0, 3 cr.]
The course introduces the concept of computers, and information systems, by presenting the process of computation as a hierarchy of virtual machines. Topics include register-level description of computer execution, the functional organization of a computer, data representation, the elements of machine and assembly-language programming, the role and function of programming languages and their associated libraries, applications including description of the functionality of the relevant software, and human-computer interaction.

Prerequisite: CSC243 Introduction to Object Oriented Programming.

CSC323 Digital Systems Design [3-0, 3 cr.]
The course introduces students to the organization, and architecture, of computer systems. Topics include the fundamental building blocks of digital logic (logic gates, flip-flops, counters, registers), programmable logic devices, (logic expressions, minimization, sum of product forms), register transfer notation, finite state machines, physical considerations, data representation, numeric data representation and number bases, representation of non-numeric data, digital circuit modeling, HDL (VHDL, Verilog), simulation of digital circuit models, synthesis of digital circuits from HDL models, and the hierarchical and modular design of digital systems (simple data paths and hardwired control unit realization) as well as the introduction to embedded systems.

Prerequisite: CSC243 Introduction to Object Oriented Programming.
CSC326 Operating Systems [3-0, 3 cr.]
This course introduces the fundamentals of operating systems design and implementation. Topics include the operating system components, the design of application programming interfaces, device organization, interrupts, concurrent execution, states and state diagrams, dispatching and context switching, interrupt handling in a concurrent environment, mutual exclusion problem, deadlock detection and prevention, models and mechanisms (semaphores, monitors, condition variables, and rendezvous), preemptive and non-preemptive scheduling, processes and threads, page placement and replacement policies, working sets and thrashing, caching, fundamental concepts of file systems, memory-mapped files, special-purpose file systems (naming, searching, and access), and the backup strategies.
Prerequisites: CSC245 Objects and Data Abstraction, and CSC320 Computer Organization.

CSC331 Business Data Communication [3-0, 3 cr.]
This course presents the fundamental concepts of data communications, networking, distributed applications, and network management and security, related specifically to the business environment and business management. The course provides an up-to-date coverage of key issues for the business student such as the high-speed networks, asynchronous transfer mode (ATM) and TCP/IP, and the use of the Internet, intranets, and extranets to support business objectives.
Prerequisite: CSC242 Introduction to Computer Programming.

CSC332 Web Design and Development [3-0, 3 cr.]
This course introduces students to the World Wide Web. Topics include the Internet, an overview of network standards and protocols, circuit switching vs. packet switching, web technologies and support tools for website creation, multimedia data technologies, scripting languages, simple Java applets, human-computer interaction aspects of webpage design, graphical user interface design, security issues and firewalls, and issues regarding the use of intellectual property on the web.
Prerequisite: CSC242 Introduction to Computer Programming.

CSC333 Database Analysis, Design, and Management [3-0, 3 cr.]
This course covers the theory of a Database Management System, within the context of its utilization in an information system application. The primary focus will be on relational database concepts. Concepts will include design, optimization, and implementation. Security and data integrity in centralized and distributed systems are issues that will be addressed. SQL will be employed as a vehicle during the development of applications.
Prerequisite: CSC242 Introduction to Computer Programming.

CSC334 Database Management Systems [3-0, 3 cr.]
This course is an introduction to the fundamental concepts and techniques of database systems. Topics include database architecture, data independence, data modeling, physical and relational database design, functional dependency, normal forms, query languages, query optimization, database security, and transaction processing.
Co-requisite: CSC310 Algorithms and Data Structures.

CSC336 Digital Systems Design [3-0, 3 cr.]
This course covers the fundamentals of digital systems design, with an emphasis on the implementation of computer systems. Topics include digital logic design, computer architecture, hardware description languages, and the design and implementation of digital systems.
Prerequisites: CSC242 Introduction to Computer Programming.

CSC338 Operating Systems [3-0, 3 cr.]
This course introduces the fundamentals of operating systems design and implementation. Topics include the operating system components, the design of application programming interfaces, device organization, interrupts, concurrent execution, states and state diagrams, dispatching and context switching, interrupt handling in a concurrent environment, mutual exclusion problem, deadlock detection and prevention, models and mechanisms (semaphores, monitors, condition variables, and rendezvous), preemptive and non-preemptive scheduling, processes and threads, page placement and replacement policies, working sets and thrashing, caching, fundamental concepts of file systems, memory-mapped files, special-purpose file systems (naming, searching, and access), and the backup strategies.
Prerequisites: CSC245 Objects and Data Abstraction, and CSC320 Computer Organization.

CSC339 Information Systems Analysis and Design [3-0, 3 cr.]
This course discusses the System Development Life Cycle (SDLC) from problem detection to a post-implementation evaluation of the chosen solution. Students analyze case studies, and design an actual business system, in response to a problem in the local business community. A Computer Aided System Engineering (CASE) toolkit is used in class, and for assignments, giving students practical experience using a structure design technology to solve business data processing problems.
Prerequisite: CSC242 Introduction to Computer Programming.

CSC340 Computer Networks [3-0, 3 cr.]
This course deals with the architecture of computers, with an emphasis on the architecture of the general purpose computers, using modern concepts such as pipeline design, memory hierarchies, IO systems, and parallel processing. The course tackles advanced computer architecture concepts which include pipelining and pipelined processors, instruction level parallelism, VLSI architectures, superscalar architectures, code scheduling for ILP processors, storage systems and RAID, memory systems, and multiprocessors and cache coherence problems, as well as the course tackles parallel processing.
Prerequisite: CSC242 Introduction to Computer Programming.

CSC341 Computer Architecture [3-0, 3 cr.]
This course covers computer architecture and design, including the implementation of computer systems. Topics include computer organization, computer instruction sets, computer arithmetic, computer memory, computer input/output, and computer multiprocessors.
Prerequisite: CSC242 Introduction to Computer Programming.

CSC342 Operating Systems [3-0, 3 cr.]
This course introduces the fundamentals of operating systems design and implementation. Topics include the operating system components, the design of application programming interfaces, device organization, interrupts, concurrent execution, states and state diagrams, dispatching and context switching, interrupt handling in a concurrent environment, mutual exclusion problem, deadlock detection and prevention, models and mechanisms (semaphores, monitors, condition variables, and rendezvous), preemptive and non-preemptive scheduling, processes and threads, page placement and replacement policies, working sets and thrashing, caching, fundamental concepts of file systems, memory-mapped files, special-purpose file systems (naming, searching, and access), and the backup strategies.
Prerequisites: CSC245 Objects and Data Abstraction, and CSC320 Computer Organization.

CSC344 Computer Architecture [3-0, 3 cr.]
This course covers computer architecture and design, including the implementation of computer systems. Topics include computer organization, computer instruction sets, computer arithmetic, computer memory, computer input/output, and computer multiprocessors.
Prerequisite: CSC242 Introduction to Computer Programming.

CSC345 Computer Security [3-0, 3 cr.]
This course is an introduction to computer security, including developing an understanding of security engineering, cryptography, mechanisms to protect the private communication over the public network, and techniques to protect networked computer systems. The course also considers the technical, operational, and managerial, issues of computer systems, and system security in an operational environment, in addition to threats including schemes for breaking security, and techniques for detecting and preventing security violations. Emphasis will be on instituting safeguards, examining the different types of security systems, and applying the appropriate level of security for the perceived risk. Hands-on experience is part of the class.
Prerequisite: CSC242 Operating Systems.

* This is an elective course and it may be offered at irregular intervals.
This course presents advanced object oriented programming concepts, and techniques, using modern programming languages and frameworks. Topics include the review of object oriented programming concepts, graphs, graphical user interface components, event-handled programming, applets, strings and characters, bit manipulation, exception handling, files and streams, collections, multimedia, multithreading, accessing databases, and server pages.

Prerequisite: CSC245 Objects and Data Abstraction.

CSC443 Web Programming [3-0, 3 cr.]

This course introduces advanced concepts in web programming, and focuses on the development of dynamic web pages that incorporate both client-side and server-side programming. Topics include web scripting using JavaScript, VBScript, and PHP, as well as Java Beans, and server-side components such as CGI, ASP, and PHP, and the installation and configuration of web servers. The course also discusses accessing databases through web applications. Hands-on experience is part of the class.

Co-requisite: CSC375 Database Management Systems.

CSC445 Programming Languages [3-0, 3 cr.]

This course is an introduction to the programming language concepts, including data types, variable binding, parameter passage techniques, scoping, block structure, activation records, run-time stacks, objects, garbage collection, typing, exception handling, and concurrency. The course covers the historical background, and the examination of the major programming paradigms (imperative, functional, object-oriented, and logic).

Prerequisite: CSC245 Objects and Data Abstraction.

CSC449 Parallel Programming [3-0, 3 cr.]

This course covers the techniques and methods for parallel programming, the models of parallel machines and programs, the efficiency and complexity of parallel algorithms, the paradigms of parallel programming and corresponding extensions to sequential programming languages, an overview of parallel languages, coordination languages and models, as well as programming on networks of workstations, and basic parallel algorithms (elementary computation, matrix multiplication, and sorting).

Prerequisite: CSC310 Algorithms and Data Structures.

CSC450* Computer Graphics [3-0, 3 cr.]

This course is an introduction to computer graphics algorithms, programming methods, and applications. The course focuses on the fundamentals of two and three dimensional raster graphics, scan-conversion, clipping, geometric transformations, computational geometry, computer-human interfaces, animation, and visual realism.

Prerequisite: CSC310 Algorithms and Data Structures.

CSC460 Artificial Intelligence [3-0, 3 cr.]

This course is a survey of knowledge based artificial intelligence. Topics include the history, definition, philosophical foundations, search techniques, game playing, propositional logic, predicate logic, knowledge representation, planning, and the natural language processing and agents.

Prerequisites: MTH207 Discrete Structures I, and CSC310 Algorithms and Data Structures.

* This is an elective course and it may be offered at irregular intervals.
COURSE DESCRIPTIONS

COMPUTER SCIENCE (GRADUATE)

CSC711 Design and Analysis of Algorithms [3-0, 3 cr.]
This course covers the time and space complexity of algorithms, the models of computation techniques for efficient algorithm design, and the effect of data structure choice on the efficiency of an algorithm. The course covers the divide and conquer techniques, greedy methods, dynamic programming, amortized analysis, and the graph and network algorithms, as well as the NP completeness, and a selected advanced algorithms.

CSC712 Automata Theory and Formal Languages [3-0, 3 cr.]
This course covers the Finite Automata and regular expressions, context-free grammars, pushdown Automata, properties of context-free languages, Turing machines, undecidability, computational complexity, and P and NP problems.

CSC713 Introduction to Bioinformatics [3-0, 3 cr.]
This course covers the use of computer science tools to solve the problems related to biochemistry and/or medicine. Topics include fundamental algorithmic methods in computational molecular biology, and bioinformatics, such as protein sequence analysis, pairwise and multiple alignment, probabilistic models, phylogenetic analysis, folding and structure prediction, biological structures (protein structures, RNA structures, etc...), and information that could be derived from them. The course is research-based. Students are required to read papers and articles, compare different techniques used to solve problems, and suggest alternatives.

CSC714 Heuristic Optimization [3-0, 3 cr.]
This course will cover the basic heuristic optimization techniques in computing. This course describes a variety of heuristic search methods including serial simulated annealing, tabu search, genetic algorithms, ant algorithms, derandomized evolution strategy, and random walk. Algorithms will be described in serial as well as in parallel fashion. Students can select application projects from a range of application areas. The advantages and disadvantages of heuristic search methods, for both serial and parallel computation, are discussed in comparison to other optimization algorithms.

CSC715 Machine Learning [3-0, 3 cr.]
This course provides an overview of popular algorithms in machine learning. Topics include supervised learning, linear and polynomial regression, classification algorithms, gradient descent, unsupervised learning, instance-based learning, neural networks, and genetic algorithms and boosting. The course requires some knowledge of artificial intelligence, and good programming skills. The theoretical aspects of the algorithms will be studied, and assignments will be given to test their applicability.

CSC716 Cryptography and Data Security [3-0, 3 cr.]
This course is an advanced survey of modern topics of theory, foundations, and applications of modern cryptography. One-way functions, pseudo-randomness, encryption, authentication, public-key cryptosystems, and notions of security, are covered. The course also covers zero-knowledge proofs, multi-party cryptographic protocols, and practical applications.
COURSE DESCRIPTIONS

CSC726 Compilers [3-0, 3 cr.]
This course covers the design and implementation of compilers for high-level languages. Topics include lexical and syntactic analysis, parsing techniques, top-down and bottom-up recognition for context-free grammars, LR(k) parsers, error recovery, semantic analysis, storage allocation for block structured languages, symbol table management, optimization, code generation, run time system design, and the implementation issues related to programming language design. A programming project is required.

CSC731 High Performance Computer Architecture [3-0, 3 cr.]
This course covers the concepts and examples of advanced computer systems, especially scalable parallel computers. Topics include memory-system design, advanced processor design techniques, pipelined, vector, shared-memory, and distributed-memory computer systems, parallel algorithms, and software and architectural issues for efficient parallel processing.

CSC732 ULSI Testing [3-0, 3 cr.]
This course covers the problems of testing of Ultra Large Scale Integrated Circuits (ULSI), the design of circuits for testability, the design of built-in self-testing circuits, and the use of the IEEE Boundary Scan Standards. Topics include an introduction to the testing process, fault modeling and detection, logic and fault simulation, testability measures, test generation for combinational circuits, test generation for sequential circuits, design for testability, built-in self-test, delay testing, current testing, ATPG-based logic synthesis, system test and core-based design, and testing a system-on-a-chip.

CSC733 Embedded Systems [3-0, 3 cr.]
This course introduces methodologies for the systematic design of embedded systems including processors, DSP memory, and software. Topics include hardware and software aspects of embedded processor architectures, along with operating system fundamentals, system specification, architecture modeling, component partitioning, estimation metrics, hardware and software co-design and diagnostics, system interfacing basics, communication strategies, sensors and actuator, and mobile and wireless technology. Projects use pre-designed hardware and software components. The course covers design case studies in wireless, multimedia, and/or networking domains.

CSC734 Advanced Computer Networks [3-0, 3 cr.]
The course covers the principles, design, implementation, and performance, of computer networks. Topics include Internet protocols, local area networks, advanced routing algorithms, TCP performance analysis, congestion control, voice and video over IP, switching and routing, mobile IP, peer-to-peer overlay networks, network security, Simple Network Management Protocol, and other current research topics. The course entails programming assignments on protocol implementation, analysis, measurement, and simulation.

CSC735 Mobile Computing and Networks [3-0, 3 cr.]
This course deals with the practical and theoretical issues in mobile computing. Topics include mobile addressing, user mobility, limiting factors, in addition to coping with constantly changing connection bandwidth in a mobile environment. The course also includes developing client-server applications in mobile and wireless environments, information dissemination models such as client-proxy-server model, and performance analysis and evaluation of applications for mobile and wireless networks.

CSC736 Networks Security [3-0, 3 cr.]
Network security is an important aspect of security. Topics include static packet filter, stateful firewall, proxy firewall, IDS, VPN Device, DMZs and screened subnets, networks defense components, internal network security, host hardening, configuration management, audit, human factors, and security policies. The course also covers cryptographic protocols, privacy and anonymity. The course entails various case studies.

CSC791 Advanced Software Engineering [3-0, 3 cr.]
The course covers the techniques for the construction of reliable, and cost-effective, large-scale software. Topics include process models, requirements analysis and specification, design methods and principles, testing methodologies, software maintenance, software metrics, and software management and quality. Students will explore, in depth, the current research work on a topic of their choice.

CSC792 Object-Oriented Software Engineering [3-0, 3 cr.]
This course introduces key concepts in object-oriented programming, and software engineering. Topics covered include data abstraction and encapsulation, polymorphism, object-oriented analysis and design methods, object-oriented programming, templates, design patterns, an introduction to UML, documentation, debugging, metrics, formal specification, user-interfaces, concurrent and distributed objects, process and project management issues.

CSC793 Software Testing and Analysis [3-0, 3 cr.]
This course is a survey of testing and analysis methods. It is an introduction to advanced topics in area, as well as traditional, production methods. Topics include inspections and reviews, formal analysis, verification and validation standards, non-statistical testing, statistical testing and reliability models, coverage methods, testing and analysis tools, and organization management and planning. Methods unique to special development approaches, such as object-oriented testing, will also be described.

CSC794 Software Quality Assurance [3-0, 3 cr.]
This course is about devising an appropriate software quality system for application domains ranging from embedded systems to e-commerce, choosing and applying appropriate quality control practices and procedures, conducting effective inspections, reviews and audits, defining the roles of an effective quality assurance group, using external certifications to significantly enhance existing practices, implementing a comprehensive system of metrics and reports, and developing, and documenting, a quality assurance plan for large, small, and fast-track projects.

CSC795 Safety-Critical Systems [3-0, 3 cr.]
This course is an introduction to the principles of system safety, including risk, basic terminology, and the main types of hazard and safety assessment techniques. The course also provides an introduction to the legal issues, management of safety critical projects, and human factors involved in the design of critical systems.

* This is an elective course and it may be offered at irregular intervals.
COURSE DESCRIPTIONS

CSC796 Human-Computer Interaction [3-0, 3 cr.]
This course provides a comprehensive introduction to the principles and techniques of human-computer interaction and user interface design, with a focus on highly usable software, user and task modeling, user centered design, evaluation of user interfaces, detailed discussion of many user interface design issues such as the use of coding techniques (color, icons, sound, etc.), screen and web page design, feedback and error messages, internationalization of user interfaces, response time, accessibility to the disabled, user interfaces for different types of devices, voice user interfaces, etc.
This course requires students to implement user interfaces.

CSC788 Advanced Topics in Computer Science [3 cr.]
This course covers selected topics in Computer Science. The course may be repeated for credits more than once.

CSC798 Project [3 cr.]
This course entails an independent development, and documentation, of substantial software, or computer-based system, using recent or significant techniques and/or tools.

CSC799 Thesis [6 cr.]
This course entails an independent investigation of a topic of interest, in a basic, or applied, computer science area, with the objective of producing original results.

Cultural Studies

CST201 Cultural Studies I [3-0, 3 cr.]
This course traces the major developments in the global human experience from the birth of civilization, through the Middle Ages. Source material is drawn from the humanities, the fine arts, the social sciences, and the natural sciences, and is organized thematically around key topics.
Prerequisite: ENG101 English I.

CST202 Cultural Studies II [3-0, 3 cr.]
This course traces the major developments in the global human experience from the 14th through the 18th Centuries. Source material is drawn from the humanities, the fine arts, the social sciences, and the natural sciences, and is organized thematically around key topics.
Prerequisite: ENG101 English I.

CST301 Cultural Studies III [3-0, 3 cr.]
This course traces the major developments in the global human experience during the 19th and 20th Centuries. Source material is drawn from the humanities, the fine arts, the social sciences, and the natural sciences, and is organized thematically around key topics.
Prerequisite: ENG101 English I.

EDU201 Fundamentals of Education [3-0, 3 cr.]
This course is an introduction to the teaching profession, providing a comprehensive examination of the historical, philosophical, and social foundations of education, as well as significant contemporary educational issues.

EDU202 Observation and Curriculum [1-2, 3 cr.]
This course covers the integration of the study of curriculum development in early childhood, and elementary school, settings with field experiences. Emphasis is on the strategies and techniques for observing, and recording, behavior in elementary and early childhood settings, where the student teacher spends 60 semester hours.

EDU205 Safety and Health [3-0, 3 cr.]
This course is a review of the health and safety practices recommended for childcare, including information on common diseases, health problems, and safety issues.

EDU211 Mathematics for Elementary Teachers [3-0, 3 cr.]
This course is a comprehensive review of the mathematics needed by teachers, and the mathematics taught at the elementary level (grades 1 through 6). The course entails an insightful understanding of the mathematical concepts, the nature and stages of the development of mathematical knowledge, the impact of new technologies (calculators and computers) on the elementary mathematics curricula, the critical thinking and problem solving strategies, etc., with emphasis on the new topics in the elementary mathematics curricula.

EDU212 Science for Elementary Teachers [3-0, 3 cr.]
This course is a comprehensive review of the sciences taught at the elementary level (grades 1 through 6). The course entails an insightful understanding of the scientific concepts, the learning cycle of the development of scientific knowledge, scientific method of investigation and inquiry, experimentation and laboratory skills, critical thinking and problem solving strategies, etc., with emphasis on the new topics in elementary science curricula.

EDU301 School Counseling [3-0, 3 cr.]
This course is a study of the principles of the theory and practice of guidance and counseling. Emphasis is on the intervention techniques that assist educators in dealing with a range of educational, and vocational, issues and concerns at school.

EDU303 Language Arts [3-0, 3 cr.]
This is a training course designed to give students practice in the effective use of classroom English, and to extend their language teaching skills and techniques, with special emphasis on the communicative approach.
COURSE DESCRIPTIONS

EDU305 Applied Phonology* [3-0, 3 cr.]
This course deals with phonetics and phonemics, phonological analysis including segmental (consonant and vowel), as well as supra-segmental (stress, intonations, juncture, pause, and rhythm) features, comparative analysis, and native language interference in second language learning. The course includes examples from a wide variety of languages, with special emphasis on the sound systems of English and Arabic. The course develops basic skills in comparative phonological analysis.

EDU310 Computers in Education [3-0, 3 cr.]
This course is designed to provide prospective teachers with broad knowledge, and practical activities, of the various instructional applications of computers. Topics include general knowledge about computers and their educational uses, simple computer programming as a means to enhance students' higher-order thinking, the evaluation, selection, and integration of educational software in teaching, and the learning of various subjects, as well as the use of the Web resources in teaching and learning. The course covers an overview of the new Lebanese Informatics curriculum.

EDU311 The Teaching of Arabic as a Foreign Language [3-0, 3 cr.]
This course is a study of the problems and methods of teaching Arabic as a foreign language, based on the findings of modern linguistic science. The course covers all the aspects of Arabic teaching including pronunciation, vocabulary, grammar, reading, writing, and testing. It handles curricular matters, and prepares students for their practice teaching experience.
Prerequisite: ENG213 Introduction to Language, or the consent of the Instructor.

EDU312 The Teaching of English as a Foreign Language [3-0, 3 cr.]
This course is a study of the methods and principles of teaching English as a foreign language, based on the findings of modern linguistics. The course deals with all the aspects of English teaching including basic language skills, sub skills, literature, and cultural orientation.
Prerequisite: ENG213 Introduction to Language.

EDU313 The Teaching of Science and Mathematics (Elementary) [3-0, 3 cr.]
This course is a study of the methods and materials used in science and mathematics, in elementary education.
Senior Standing.

EDU314 The Teaching of Social Studies [3-0, 3 cr.]
This course is designed to equip students with the knowledge and the tools necessary to teach social studies across all grade levels. These competencies include planning, implementing, and evaluating the social studies curriculum, in addition to content and process skills. Special emphasis is given to values and character education, to reflect the objectives set forth by the new Lebanese curriculum.

EDU315 The Teaching of Mathematics in Secondary Schools [3-0, 3 cr.]
This course is a study of the objectives, concepts, and classroom procedures, in secondary education, with emphasis on the selection, preparation, and use of teaching materials, including lesson plans and multimedia aids.
Senior Standing

EDU316 The Teaching of Science in Secondary Schools [3-0, 3 cr.]
This course is a study of the objectives, problems, and procedures, appropriate for the secondary school, with emphasis on preparing plans, the use of demonstrations, experiments, science curriculum projects, and reference materials.
Prerequisites: EDU201 Fundamentals of Education, and Junior Standing.

EDU319 Teaching Reading [3-0, 3 cr.]
This course is a study of the modern trends and issues in the teaching of reading as applied to English, with emphasis on practical work, to acquaint students with the processes of reading, and to improve their competency in these skills.

EDU321 Children’s Literature [3-0, 3 cr.]
This course is an exploration of the various types of children’s literature. It aims at developing critical analysis of the purposes, and the strategies for teaching, and the evaluation of literature for children.

EDU331 Educational Technology [3-0, 3 cr.]
This course is a study of the interrelated uses of instructional materials and techniques in education at both the primary and secondary levels. The course is designed to prepare prospective teachers to serve society in the present technological era.

EDU332 Educational Measurement [3-0, 3 cr.]
This course is a critical examination of the basic principles and techniques of testing, and evaluation, in the total education process, and the use of modern software for basic statistical techniques needed for the analysis of tests. The focus is on the preparation, use, and analysis, of various school tests.

EDU414 Methods and Materials in ECE [3-0, 3 cr.]
This course involves an examination of the processes of planning appropriate learning environment, materials, and experiences that meet the developmental needs of students or groups of children in a classroom setting.

EDU419 Internship [1-2, 3 cr.]
This course is a laboratory field experience course introducing concept problems and skills common to prospective teachers. Students spend 60 semester hours assisting the cooperating teacher in classroom activities, including supervising and monitoring class work, assisting in classroom management, substitute teaching, and preparing various educational materials in their area of emphasis.

* This is an elective course and it may be offered at irregular intervals.
COURSE DESCRIPTIONS

EDU420 Practice Teaching – Early Childhood Education [1-2, 3 cr.]
This course is a field-based practicum, in which schools serve as laboratories for student teachers to gradually assume the obligations of the classroom teacher. Continuous evaluation is provided by the supervisor, and the cooperating teacher, to enhance the student teacher’s professional growth. It requires a minimum of 40 hours of practice in the area of emphasis.

EDU421 Practice Teaching – Elementary Education: Language, Arts and Social Studies [1-2, 3 cr.]
This course is a field-based practicum, in which schools serve as laboratories for student teachers to gradually assume the obligations of the classroom teacher. Continuous evaluation is provided by the supervisor, and the cooperating teacher, to enhance the student teacher’s professional growth. It requires a minimum of 40 hours of practice in the area of emphasis.

EDU422 Practice Teaching – Elementary Math and Science [1-2, 3 cr.]
This course is a field-based practicum, in which schools serve as laboratories for student teachers to gradually assume the obligations of the classroom teacher. Continuous evaluation is provided by the supervisor, and the cooperating teacher, to enhance the student teacher’s professional growth. It requires a minimum of 40 hours of practice in the area of emphasis.

Senior Standing.

EDU425 Practice Teaching – Secondary Math Education [1-2, 3 cr.]
This course involves thirty hours of practice teaching at the intermediate and secondary levels, preceded by 10 hours of observation in the class, or classes to be taught. The course includes one seminar per week, and conference periods with supervisors.

Senior Standing.

EDU426 Practice Teaching – Secondary Science Education [1-2, 3 cr.]
This course involves thirty hours of practice teaching at the intermediate and secondary levels, preceded by 10 hours of observation in the class, or classes to be taught. The course includes one seminar per week, and conference periods with supervisors.

Prerequisites: One methods course, and Senior Standing.

EDU427 Practice Teaching – Secondary English Education [1-2, 3 cr.]
This course involves thirty hours of practice teaching at the intermediate and secondary levels, preceded by 10 hours of observation in the class, or classes to be taught. The course includes one seminar, per week, and conference periods with supervisors.

Prerequisites: One methods course, and Senior Standing.

EDU499 Senior Study [1-2, 3 cr.]
This course is an independent scholarly work on a topic chosen by the student, and related to his/her emphasis of study.

COURSE DESCRIPTIONS

EDU802 Curriculum Design [3-0, 3 cr.]
The aim of this course is to review the history of curriculum development, to analyze the current curriculum issues, including the impact of new technological advancement on curricula, and to develop a comprehensive curriculum design. Students will learn to critically evaluate curricula in terms of structural elements, tools, and assumptions regarding subject matter and learning.

EDU803 Methods of Educational Research [3-0, 3 cr.]
This course develops the essential concepts and skills of educational research. It is intended to provide a structured, supportive, hands-on, environment for learning these skills, and it involves designing a research project for a small-scale study. Automated data acquisition, and analysis tools, will be used, and ethical considerations in educational research will be addressed. The course also enables students to critically interpret and evaluate research, by analyzing various research methods used in educational publications.

EDU805 Educational Technology [3-0, 3 cr.]
This course focuses on the theoretical bases of the design and production of teaching and learning materials, using various technologies, and stressing on the Information and Communication Technology (ICT) tools. Students will experience the changes in educational settings fostered by these tools which include the Internet, webquest, distance learning, video conferencing, etc. Communication theory and research are combined with design principles to guide students in creating audio-visual materials for teaching.

EDU806 Advanced Educational Psychology [3-0, 3 cr.]
This course is designed to aid the educators in predicting, understanding, and controlling, the fundamental principles of learning, and human development, as they apply in educational settings. It also provides an in depth overview of the theoretical frameworks of development theorists. The course critically examines research in human development and psychology, and its implications to schooling, learning processes, teaching techniques, and other educational issues.

EDU812 Literacies across the Curriculum [3-0, 3 cr.]
This course examines contemporary theories of teaching, classroom practices of literacy processes, and authentic literacy assessment methodology. Students will be involved in examining a diverse range of views regarding literacy, and literacy education, and in constructing a coherent conceptual basis for their own practice as literacy educators in school contexts. It tackles different types of literacy including reading, writing, information, computer, math, and science literacy.

EDU814 Comparative Education [3-0, 3 cr.]
This course examines education in its socio-cultural contexts, as it reflects and influences social, economic, and political life, nationally, and globally. It offers a framework of analysis and comparison of educational systems by examining issues of access, equity, quality, and efficiency.
EDU822 Trends & Issues in Math Education [3-0, 3 cr.]
This course aims to discuss the issues pertaining to the design, and development, of school mathematics, its teaching, and its learning. The main issues to consider relate to the nature of math, its philosophical, historical, epistemological, societal, and cognitive bases. The course includes a review of research, and a critical evaluation of math curricula, aiming at identifying, comparing, and contrasting, major trends of mathematics education.

EDU823 Technology in Math Education [3-0, 3 cr.]
This course investigates the effects of new technologies on school mathematics, and on teaching/learning. It has theoretical and practical components, aiming at reviewing research and major theories about technology mediation in math teaching/learning, as well as laboratory sessions for training students in using software for teaching math, designing relevant class situations, and developing appropriate math curriculum materials integrating suitable technology. Technologies considered include the different types of calculators (simple, scientific, and graphic), and computer software (e.g., dynamic geometry, spreadsheets as math learning tools, computer algebra systems, and math education websites).

EDU825 Mathematical Language, Representations, and Modeling [3-0, 3 cr.]
This course aims at an epistemological, and didactical, study of mathematical representations, and symbolic systems, across the mathematical disciplines. It helps students develop situations where mathematical communication, and shifts among the different symbolic systems (from natural language to diagrams, tables, figures, graphs, drawings, etc.), contribute to the construction of knowledge and the understanding of concepts. The course includes a review of research on related processes, such as problem solving, modeling, representations, proof, logic, and mathematical reasoning.

EDU832 Leading & Managing Schools/ Education Institutions [3-0, 3 cr.]
This course deals with the major topics of leadership versus management, decision-making, team management, responding to the external community, and school mission and values. Students will learn about managing the curriculum, reviewing/assessing student learning, and managing and allocating resources.

EDU833 Trends & Issues in Educational Management [3-0, 3 cr.]
This course covers the trends and issues such as school effectiveness, and school improvement, culture and ethos, evaluation/inspection, and induction. Issues in managing staff development and relations with stakeholders will also be explored.

EDU837 Practicum in Educational Management [3-0, 3 cr.]
This course is part seminar and part practicum. First, the practical component provides exposure to planning, organizing, and managing departments, schools, and other educational institutions such as technical institutions, colleges, and universities, under the supervision of the course instructor and the cooperating practitioner. Second, the seminar component focuses on the instructional supervision and the personnel management. Special attention is given to research in the field.

EDU842 Trends & Issues in Early and Middle Childhood Education [3-0, 3 cr.]
This course exposes students to the development and changes taking place in the field of early and middle childhood education. It also involves a critical evaluation of existing programs. Topics may include the recent developments in early and middle childhood education, such as integrated and interdisciplinary curricula, global education, and teaching models.

EDU843 Pedagogy in Early and Middle Childhood Education [3-0, 3 cr.]
This course examines the theoretical foundation of teaching styles, and concentrates on planning and developing relevant teaching strategies. Students will develop knowledge on the theory and research on teaching students’ thought processes, effective teacher behavior, and classroom set up models.

EDU852 Trends & Issues in TESOL [3-0, 3 cr.]
This course will cover the major theoretical and research developments in the learning of other languages. It will investigate the relevance, and application, of this work in the language classroom. Modern tools for language teaching and learning will be an essential part of the course such as websites, internet search, language laboratory facilities, etc.

EDU853 Sociolinguistics & Social Context of Language [3-0, 3 cr.]
This course will look at the importance of context in language use across issues such as social identity, gender, social class, and ethnicity. This course treats the manifold relationships between language and society, which relate closely to other aspects of language study, such as discourse, pragmatics, and culture, and has good connections with sociology, anthropology, social psychology, and education. These relationships and connections make sociolinguistics an interesting field for language teachers to study, and to apply to their professional understanding, and pedagogic practice.

EDU855 Multilingualism in Education [3-0, 3 cr.]
This course explores both the theoretical and practical issues in multilingual education. Topics include the patterns of bilingual and multilingual language acquisition, the consequences of bilingualism for cognitive development, the mother tongue attrition, and the development of second language academic literacy. The course explores recent research, and its implications for K–6 classroom instruction, and takes a critical look at the nature of language proficiency, and its assessment as it applies to young children.

EDU857 Discourse and Materials Development [3-0, 3 cr.]
This course discusses how language teachers may incorporate pragmatic and discourse awareness in their teaching, to implement a communicative approach in their respective classrooms, and thus enhance the teaching of traditional areas of linguistic knowledge, as well as the teaching of language processing skills. This should eventually lead to materials’ development for the language classroom.
EDU862 Trends & Issues in Science Education [3-0, 3 cr.]
This course emphasizes the importance of science education, and its contribution to the needs of students in a modern society. The course provides an overview, and analysis, of the recent issues and trends in science education reform. Topics include the elements of the history of science education, the minimum requirements for a science literate citizen, the theories of science education, and how to evaluate methods, materials, curriculum, or reform projects, in science education.

EDU863 Technology in Science Education [3-0, 3 cr.]
This course provides students with an introduction to technology concepts, as applied in science education. They are shown how to find technology appropriate to solving educational problems in science education, and how to evaluate such technology. Among the technologies that may be examined are Computer Assisted Instruction (CAI), scientific and graphic calculators, CD-ROM, multimedia, laboratory probe-ware, simulations, and the Internet.

EDU872 Special Education [3-0, 3 cr.]
This course takes an in-depth look at the learning, social, and behavior characteristics of students with learning difficulties, and focuses on the current practices, and intervention programs, in the field of special education to help these students.

EDU873 Psychoeducational Assessment [3-0, 3 cr.]
This course examines the assessment procedures, techniques, and instruments, used in screening and evaluating, psychological, cognitive abilities, and the achievement of students with learning disorders. It combines lectures and hands-on sessions, and acquaints students with various formal, and informal, assessment materials. Attention will be given to ethical issues in testing.

EDU874 Behavior Modification Techniques [3-0, 3 cr.]
This course focuses on the principles and applications of behavior theory, as they apply to the classroom setting. The main objective of this course is to equip students with tools that will allow them to design, and execute, educational plans, tailored specifically to fulfill the needs of each individual student in the classroom. The course is geared toward the managing of day-to-day problems as they arise, in the school setting. Limitations of the behavioral model are also addressed.

EDU875 Dyslexia and Reading Difficulties [3-0, 3 cr.]
This umbrella course focuses on reading difficulties, the main challenge that students with learning disorders face, and sheds particular light on the most common of reading disorders: dyslexia. Students will also be required to work closely with dyslexic children, as part of course objectives, to gain more practical knowledge about dyslexia.

EDU876 Teaching Students with LD in the Regular Classroom [3-0, 3 cr.]
This course investigates the foundations of effective teaching for students with learning difficulties; it proposes learning-teaching approaches, and materials that are effective in educating learning-disabled, and mild mentally retarded students in the areas of reading, spelling, and mathematics.

EDU877 Special Education Practicum [3-0, 3 cr.]
This course deals with the applied aspect of the Program. Students will be asked to complete an internship in a school that caters to students with learning difficulties. Students will first learn the basics of mainstreaming students, planning individualized educational plans, modifying the curriculum, developing instructional materials, and teaching learning disabled, and delayed, students, one-on-one, and in groups, using a variety of tailor-made remedial strategies, to help them reach their instructional objectives.

EDU883 Counseling Theories and Techniques [3-0, 3 cr.]
This course emphasizes counseling and consultation theories, and presents philosophical underpinnings of theories of personality, and those incorporated into counseling practice. It is an overview of the field, with emphasis on understanding the nature of counseling, and the counselor’s role in a school setting. Basics of interviewing skills, and counseling assessment techniques, are presented, as well counseling special needs students, and relevant ethical issues, are discussed.

EDU885 Counseling Children and Adolescents in School Setting [3-0, 3 cr.]
This course covers the examination of models of therapeutic interventions from infancy to adolescence. Students become familiar with the ways of adapting appropriate interventions within the local culture e.g., play therapy and token economy with children, and the use of cognitive and emotional therapies with adolescents. In addition, this course will examine the basic developmental issues from infancy to adolescence that under-gird counseling practice. Typical psychosocial tasks are explored, with special consideration for counseling in a school context.

EDU887 Counseling Practicum [3-0, 3 cr.]
This course is a semester of supervised counseling practice in a school setting, consistent with the student’s professional goals. This pre-professional experience allows students to implement counseling strategies while receiving structured and intensive feedback about their strengths, and weaknesses. Students will meet with LAU Faculty for weekly seminar classes throughout the practicum.

EDU888 Topics in Education [3-0, 3 cr.]
This course deals with the current issues, and concerns, in education. It is alternatively taught by various Faculty to cover a wide range of specialty areas.

EDU898 Project in Education [3 cr.]
This course deals with the current issues, and concerns, in education. It is alternatively taught by various Faculty to cover a wide range of specialty areas.

EDU899 Thesis in Education [6 cr.]
This course deals with the current issues, and concerns, in education. It is alternatively taught by various Faculty to cover a wide range of specialty areas.
COURSE DESCRIPTIONS

ENGLISH (INTENSIVE)

ENG002 Intensive English II [12-2, 0 cr.]
This is a non-credit, intermediate level, English course, aimed at consolidating previously learned skills, and expanding into new areas using controlled texts, programmed materials, and situational activities. Emphasis is placed on speaking, listening, reading, and writing, according to an integrated content-based approach with laboratory support.
Prerequisite: English Entrance Exam (EEE) 400–449 or its equivalent.

ENG003 Intensive English III [12-2, 0 cr.]
This is a non-credit, advanced level, English course, aimed at bridging the gap between intensive English, and English 009 Academic English, proficiency. Emphasis is placed on listening, speaking, reading, and writing, according to an integrated content-based approach with laboratory support.
Prerequisite: EEE 450–499 or equivalent.

ENGLISH (LIBERAL ARTS CURRICULUM REQUIREMENTS)

ENG009 Remedial English [3-0, 0 cr.]
This course is designed to develop effective reading and writing skills. Emphasis is placed on the paragraph and essay formats. Basic grammar and mechanical skills are revisited. Laboratory sessions reinforce listening, speaking, and study skills. The course emphasizes academic style and task-based work.
Co-requisite: INF201 Learning Resources Techniques.
Prerequisite: EEE score 500–549 or its equivalent.

ENG101 English I [3-0, 3 cr.]
This is a course designed to reinforce the effective and critical reading and writing skills, with emphasis on summarizing, paraphrasing, citing sources, and study skills. The course emphasizes academic style, and task based work.
Prerequisite: ENG009, or EEE score between 550 and 599, or its equivalent.

ENG102 English II [3-0, 3 cr.]
This is a course designed to develop advanced reading and writing skills associated with academic work. Emphasis is on the analytical and critical reading of texts, as well as on writing in a variety of modes. Students develop a research paper, and learn to formulate researchable questions through locating appropriate resources in the library, the community, and the electronic media. Students also learn to organize their findings, and to develop the manuscript and cite the sources following the academic conventions.
Prerequisite: ENG101 English I, or EEE score between 600–649, or its equivalent.

ENG202 Sophomore Rhetoric [3-0, 3 cr.]
This course is for practice in reading and writing, both formal and creative. It covers the critical analysis, evaluation, formulation, and the presentation of verbal and written opinions, based on the best possible evidence, as well, it covers the methods of formal argumentation.
Prerequisite: ENG102 English II, or EEE score of 650 and above, or its equivalent.

ENG203 Fundamentals of Oral Communication [3-0, 3 cr.]
This course covers the fundamentals of oral communication, along with a practice in platform speaking, in expository and persuasion. Emphasis is placed on the use of correct, and effective, language and organizational skills in preparing, delivering, and evaluating, the different types of oral presentations.
Prerequisite: ENG102 English II, or EEE score of 650 and above, or its equivalent.

ENG211 Literature I [3-0, 3 cr.]
This course offers a critical study of literature from the ancient world, through the Renaissance, with emphasis on the European and Mediterranean traditions. Readings chosen emphasize themes that continue to resonate in the present. Topics and writers studied may include the Greek mythology, Homer, Sappho, Virgil, Petronius, Dante, Rabelais, and Anna Bins.
Prerequisite: ENG102 English II.

ENG212 Literature II [3-0, 3 cr.]
This course offers a critical study of Western literature from the 17th Century through to the 20th Century, as a continuation of ENG 211. Topics and writers may include Montaigne, Cervantes, Baroque poetry, Molière, Goethe, German romanticism, Chekhov, and Kafka.
Prerequisite: ENG102 English II.
COURSE DESCRIPTIONS

ENGLISH (MAJOR)

ENG213 Introduction to Language [3-0, 3 cr.]
This course is a survey of the theoretical bases of language study, emphasizing theories of language origins and developments. Topics include semantics, syntax, pragmatics, writing systems, dialects, phonology, and the contrast between communication, true language, and artificial language. 
Prerequisite: ENG102 English II.

ENG214 English Grammar [3-0, 3 cr.]
This course is a study of the grammatical structures, and a critical analysis of the descriptive uses of grammar. 
Prerequisite: ENG102 English II.

ENG303 Literary Linguistics [3-0, 3 cr.]
This course offers a systematic linguistic approach to literary analysis, utilizing such linguistic tools as transitivity and voice, deixis, tense, modality, etc. It aims at consolidating students’ knowledge of both literature and linguistics, by drawing on their interconnectedness. 
Prerequisite: ENG102 English II.

ENG306 Introduction to Phonetics and Phonology [3-0, 3 cr.]
This course deals with phonetics, phonological analysis (including segmental, consonant and vowel, as well as supra-segmental, stress, intonations, juncture, pause, and rhythm features), comparative analysis, and native language interference in second language learning. It includes examples from a wide variety of languages, with special emphasis on the sound systems of English and Arabic. Students develop basic skills in comparative phonological analysis. 
Prerequisite: ENG102 English II.

ENG307 Introduction to Psycholinguistics [3-0, 3 cr.]
This course examines the influence of psychological factors on the development, use, and interpretation of language, and investigates the relationship between language and thought. The course also surveys experimental and empirical studies of linguistic usage, and the development of language. 
Prerequisite: ENG102 English II.

ENG308 Semantics and Pragmatics [3-0, 3 cr.]
This course introduces theoretical and empirical approaches to linguistic semantics and pragmatics, in relation to language encoded meanings, as part of the language syntactic structures, and language choice in a social interaction/context. 
Prerequisite: ENG102 English II.

ENG310 Sociolinguistics [3-0, 3 cr.]
This course introduces language in its social context. Special areas of interest would include interactional, varietal, and cultural linguistics, across speech communities, mainly in relation to class, gender, ethnicity, and multilingualism. 
Prerequisite: ENG102 English II.

ENG319 History of the English Language [3-0, 3 cr.]
This course focuses on the history and development of the English language from its origins to the present, including the historical context of the development of the language. 
Prerequisite: ENG102 English II.

ENG323 Renaissance Drama [3-0, 3 cr.]
This course explores the plays of Shakespeare, and his contemporaries, with attention to their social context and later reception. Close readings of texts and film versions are directed toward discerning elements of dramatic technique, characterization, and theme. 
Prerequisite: ENG102 English II.

ENG324 Medieval Literature [3-0, 3 cr.]
This course surveys the medieval origins of the English language until the late 15th Century, across the genres of lyric, epic, romance and drama. Writers and texts studied may include Beowulf, La Mort D’Arthur, Chaucer, Langland and Everyman. 
Prerequisite: ENG102 English II.

ENG325 Renaissance Poetry [3-0, 3 cr.]
This course explores the genres of lyric, and epic, poetry from the 16th and 17th Centuries. Students study the work of poets such as Wyatt, Sidney, Spenser, Shakespeare, Donne, and Milton. 
Prerequisite: ENG102 English II.

ENG326 Restoration and Neoclassical Literature [3-0, 3 cr.]
This course places the genres of poetry, drama, and the prose essay, within their historical contexts. Writers studied may include Dryden, Bunyan, Pope, Johnson, and Congreve. 
Prerequisite: ENG102 English II.

ENG327 Early Novel [3-0, 3 cr.]
This course focuses on the emergence and early development of the novel in English, in light of its historical and literary contexts. Writers studied may include Defoe, Richardson, Fielding, and Sterne. 
Prerequisite: ENG102 English II.

ENG336 Romantic and Victorian Poetry [3-0, 3 cr.]
This course examines lyric and narrative poetry throughout the 19th Century. Students study the work of poets such as Blake, Coleridge, Keats, Tennyson, and Arnold. 
Prerequisite: ENG102 English II.

ENG339 19th-Century British Novel [3-0, 3 cr.]
This course explores the novel of the 19th Century England according to how it addresses major thematic, and aesthetic, concerns of the period. Writers studied may include Austen, Dickens, Eliot, and Hardy. 
Prerequisite: ENG102 English II.
COURSE DESCRIPTIONS

ENG342 Modernism and Beyond [3-0, 3 cr.]
This course explores the concept of Modernism and Modernist art forms from the late 19th Century to the 1960s. Through selected poetry, prose, film, and plastic arts, the course seeks to convey an artistic, social, and intellectual climate. Writers studied may include Yeats, Eliot, Woolf, Stevens, Auden, and Pynchon.
Prerequisite: ENG102 English II.

ENG345 The 20th-Century British Novel [3-0, 3 cr.]
This course tracks the British novelistic production throughout the 20th Century. Issues explored may include the ways in which these narratives relate to colonialism, and its legacies, or to social contexts of textual production. Writers studied may include Woolf, Forster, Waugh, Ishiguro, Barnes, and Drabble.
Prerequisite: ENG102 English II.

ENG346 Contemporary Culture [3-0, 3 cr.]
This course explores the contemporary culture through literature, film, and other media, using a British, or American, cultural studies approach. Topics may include the ways in which culture intersects with politics, race, class, religion, gender, or globalization.
Prerequisite: ENG102 English II.

ENG348 Postcolonial Anglophone Literatures [3-0, 3 cr.]
This course explores the English language literary production from areas outside of Europe and North America. Intercultural encounter, Diaspora, and indigeneity, may be among the objects of study. Writers may include Achebe, Soyinka, Naipaul, Rushdie, and Lessing, in addition to postcolonial theorists.
Prerequisite: ENG102 English II.

ENG351 Early American Literature [3-0, 3 cr.]
This course chronicles the formation of a national literature from its Puritan beginnings to the late 19th Century. In tracing the emergence of an American "voice," coursework may span a variety of genres such as autobiography, poetry, the novel, essays, and speeches.
Prerequisite: ENG102 English II.

ENG352 20th-Century American Novel [3-0, 3 cr.]
This course tracks the American novelistic production throughout the 20th Century. Issues explored may include war, race, the Great Depression, the Cold War, and neo-imperialism. Writers studied may include James, Dos Passos, Faulkner, Barthes, Morrison, and Franzen.
Prerequisite: ENG102 English II.

ENG354 Theories of Literature and Culture [3-0, 3 cr.]
This course examines the theories of literary, cultural, production and reception. The course may be arranged chronologically, or according to schools and approaches.
Prerequisite: ENG102 English II.

ENG366 Creative Writing [3-0, 3 cr.]
This course examines the techniques of fiction, poetry writing, and creative non-fiction writing, based on the study of selected models. Free-writing exercises, and discussion of writing assignments, will be emphasized.
Prerequisite: ENG102 English II.

ENG372 Comparative and World Literatures [3-0, 3 cr.]
This course concentrates on the insights and problems of literature from a cross-cultural perspective. Questions of genre, period, and cultural relativism may be examined through primary texts drawn from two or more language traditions.
Prerequisite: ENG102 English II.

ENG376 Gender in Literature [3-0, 3 cr.]
The course traces the construction of gender, as depicted in literature and other cultural productions. Women’s issues, sexuality, and identity formation may be among the objects of study.
Prerequisite: ENG102 English II.

ENG472 Topics in English Language [3-0, 3 cr.]
This course deals with a specific area of language study, or a topic that is not usually dealt within the other language offerings. It aims at helping students understand and analyze concepts associated with language. It may be repeated once for credit by English Majors, if the course content is different.
Prerequisite: ENG102 English II, Senior standing, or the consent of the Instructor.

ENG474 Topics in Literature and Culture [3-0, 3 cr.]
This course explores a literary-theoretical topic in some depth. Topics might include philosophy and literature, psychological and Marxist approaches to literature, narrative theory or postmodernism.
Prerequisite: ENG102 English II, Senior standing, and the consent of the Instructor.

ENG487 Topics in Drama and Theater [3-0, 3 cr.]
This course is cross-listed with COM487. The course explores the ideas of form, convention, style and context, in drama and theatre. It focuses on the different dramatical, and theatrical, approaches to specified topics, or theatre trends or schools (Modern Drama, Postmodernism, Documentary Drama, Gender and Theatre, Popular Theatre, etc. . . ). The Course may be repeated if topics differ. Students may take it more than once.
Prerequisite: COM342 Play Production, or the consent of the Instructor, Senior Standing.

ENG499 Senior Study [3-0, 3 cr.]
This course is an in-depth individual project, involving personal research, under close Faculty supervision, culminating in a substantial critical paper on a subject relevant to English literature or language.
Prerequisite: ENG102 English II, Senior Standing, and the consent of the Instructor.
ENVIROMENTAL SCIENCE
ENV201 Man and His Environment [3-0, 3 cr.]
This is an introduction to the environmental problems and challenges facing mankind. Global problems will be directly related to issues facing the regional, and local environment. The course covers environmental problems and their causes, ecosystems and how they work, deforestation, loss of biodiversity, species extinction, air pollution, global warming, ozone depletion, solid waste disposal, renewable energy technologies, and applications to alleviate environmental problems. Case studies will be presented, and potential solutions will be attempted. The course includes field trips.

FINE ARTS
ART101 Introduction to Music and Art [3-0, 3 cr.]
This is a course in music and art appreciation, introducing students to techniques, outstanding examples, and representative works of the various Periods, with a look at the inter-relationship between them.

ART201 Fundamentals of Design I [0-6, 3 cr.]
This course is a studio course investigating the basic elements and principles of the visual arts in two dimensional media and form.

ART202 Fundamentals of Design II [0-6, 3 cr.]
This course is a studio course investigating the basic elements and principles of the visual arts in three dimensional media and form.

ART211 Ceramics I [0-4, 3 cr.]
This course is an introductory course to the primary techniques of hand-made pottery, its maintenance, and finish, as well as the understanding, preparation, and maintenance, of clay through its various stages, and the relation of design, functional and otherwise, to the medium.

ART212 Ceramics II [0-4, 3 cr.]
This course is a focus on wheel-made pottery, stressing the relation of good functional design to useful wheel-made objects, by offering basic shapes of such pottery. Pre-requisite: ART211 Ceramics I.

ART221 Drawing I [0-6, 3 cr.]
This course is a study of the basic drawing techniques in various media with regard to landscape, still life, and the human figure.

ART222 Drawing II [0-6, 3 cr.]
This course is a concentrated study of the human figure, emphasizing analysis, and the synthesis of visual experience. Pre-requisite: ART221 Drawing I.

ART223 Perspective Drawing [1 cr.]
This course is a practical studio course which investigates, and applies, the laws of linear perspective in the rendering of three dimensional objects, and scenes on two dimensional surfaces. To be taken concurrently with ART221 Drawing I.

ART331 History of Art I [3-0, 3 cr.]
This course is a survey of the visual art in the ancient Oriental, Classical, and Medieval periods.

ART332 History of Art II [3-0, 3 cr.]
This course is a survey of the visual art in the Renaissance, Baroque, and Modern periods.

ART333 Art Education [1-4, 3 cr.]
This course is a survey of the principles, materials, techniques, and resources for teaching art to children. Emphasis is on the extensive variety of art media suitable for young children, such as clay, paint, collage, and drawing.

ART334 Graphics [0-6, 3 cr.]
This course is a studio course investigating the basic printing processes of intaglio, planography, and relief. Pre-requisite: ART201 Fundamentals of Design I (2-D), or ART221 Drawing I.

ART335 Islamic Art of the Middle East [3-0, 3 cr.]
This course is designed to stimulate a deeper understanding of Islamic Art of the Middle East, by unfolding its cultural origins.

ART341 Painting I [0-6, 3 cr.]
This course is an introduction to painting procedure. The course includes detailed studies from still life, landscape, and the human figure. Pre-requisites: ART201 Fundamentals of Design I (2-D), ART221 Drawing I, or the consent of the instructor.

ART342 Painting II [0-6, 3 cr.]
This course is a studio course that looks into a variety of approaches to space interpretation on a two dimensional plane. Pre-requisite: ART341 Painting I, or the consent of the Instructor.

ART351 Sculpture I [0-6, 3 cr.]
This is an advanced course that provides for greater proficiency in creation of the three-dimensional form. Special emphasis on the production of free standing, and relief sculpture for specific sites, is covered. Pre-requisite: ART351 Sculpture I, or the consent of the Instructor.
ART431 Modern Art [3-0, 3 cr.]
This course is a comprehensive examination of stylistic developments in visual art from the advent of impressionism to the present.

ART441 Painting III [0-6, 3 cr.]
This course is a studio course developing in students a greater awareness of the elements of art’s expressive potential in the creation of various moods.
Prerequisite: ART342 Painting II, or the consent of the Instructor.

ART442 Painting IV [0-6, 3 cr.]
This course is a studio course developing skills in the use of various painting materials and techniques. It is a stepping stone to different media.
Prerequisite: ART441 Painting III, or the consent of the Instructor.

ART499 Senior Study [0-6, 3 cr.]
This is a senior course providing for independent initiation and execution of art projects, allowing for greater depth and research in the development of a personal idiom.

GRA231 Design Studio I A [0-6, 3 cr.]
This course is a studio course investigating the basic elements and principles of the visual arts in two-dimensional media and form.

GRA232 Design Studio I B [0-6, 3 cr.]
This course is a studio course investigating the basic elements, and principles, of the visual arts in three-dimensional media and form.
Prerequisite: GRA231 Design Studio I A, or the consent of the Instructor.

GRA301 Intermediate Computer Graphics [1-4, 3 cr.]
The objective of this laboratory studio course is to have a working knowledge of the most important software used in the graphic industry. The course covers the advanced Adobe Photoshop, which delivers powerful industry-standard image editing tools to produce sophisticated graphics for print, and for the web, as well as the advanced Adobe Illustrator, which is the industry-standard illustration program for print, multimedia, and online graphics. Emphasis will be on InDesign, powerful electronic publishing software that renders the publishing process easier, faster, and more creative. Using this software, students will be able to design, and output to the press, any kind of publication, from a simple black and white business card to a multicolor magazine layout. The course is divided into individual lessons that provide step-by-step instructions for creating, and experimenting specific projects. The division of the course is based on demo presentations, exercises, projects, discussions, and critiques.
Prerequisites: GRA251 Introduction to Computer Graphics, and GRA233 Design Studio IIA.

GRA302 Advanced Computer Graphics [1-4, 3 cr.]
This course is a continuation of instruction in computer graphics. It covers an in-depth instruction on the generation and manipulation of images, and typography, using digital media on Macintosh computer hardware and software. The course includes a compilation of several animations designed by the students.
Prerequisite: GRA352 Graphic Design II.

GRA312 Printing Variables [1-4, 3 cr.]
This course is an introduction to the printing processes, and the printing industry including concepts, elements, principles, and techniques of printing, as well as the basic experiences in the preparation of graphic design methods, processes of printing industry, and prepress procedures through lectures, assignments and field trips. The course includes a hands-on project executed at the printing press.
Prerequisite: GRA352 Graphic Design II.

GRA341 Art of Calligraphy [1-4, 3 cr.]
This is an Elective Course.
This course is designed to train the student to appreciate the skills of calligraphy. Studio projects will include research into calligraphy’s historical use, and its development into creative motive art forms. The use of proportions to enhance legibility, and to communicate a feeling, a thought, or an attitude, with superb control and infinite sensitivity, are covered.
Prerequisites: GRA251 Introduction to Computer Graphics, and GRA233 Design Studio IIA.

GRA342 Art of Illustration [1-4, 3 cr.]
This course is designed to give students a working knowledge of the tools and concepts involved in illustrative drawing and design. Students apply various techniques in this practical course, including the study of the history of illustration, research, and personal development towards the perfecting of original artwork for specific projects set by the instructor. The development of a personal style of illustration will be encouraged.
Prerequisites: ART222 Drawing II, and GRA351 Graphic Design I.

GRA345 Silk Screen and Binding [1-4, 3 cr.]
This course explores silkscreen, one of the most versatile, and widely used, methods of printmaking, through demonstrations and self-initiated projects. Images can be made using hand-drawn separations, photographic film, digital separations, and Xeroxed images. The course covers the traditional methods of screen-making, such as hand-cut stencils and separations in paper, hand-drawn screens with litho crayons, pen, and litho opaque and computer and photo-generated imagery. Various bookbinding techniques will be demonstrated, including Japanese binding, accordion folding, and signature binding. This course will cover the process from the concept, all the way to the end, and bound multiple bookmaking. Silkscreen is made for multiple prints, and it is natural continuation to have the ability to make a book to place all these prints in.
Prerequisites: GRA251 Introduction to Computer Graphics, and GRA233 Design Studio IIA.
COURSE DESCRIPTIONS

GRA351 Graphic Design I [1-4, 3 cr.]
This course is an introduction to the visual elements, principles, problem solving methodology, and techniques of graphic design. Students develop a proficiency in the knowledge and application of the elements of design including color, typography, composition, and visual conventions for two-dimensional solutions. The course entails the study of the methods to produce comprehensive layouts, including single and multi-page layouts in two-dimensional space, for graphic design problems. Creative ideas are encouraged through research and practical applications. Printing processes are introduced.
Prerequisites: GRA251 Introduction to Computer Graphics, GRA233 Design Studio IIA, and CST201 Cultural Studies I.
Co-requisite: ENG102 English II.

GRA352 Graphic Design II [1-4, 3 cr.]
This course is an introduction to the generation and solution of three-dimensional graphic design problems. It explores visual language, compositional principles, problem solving methodology, and production in graphic design. The student is introduced to the dimensional requirements faced by those communicators who choose to work in the areas of three-dimensional design, with an emphasis on package design. Projects may include a range of graphic design problems, from the design of a package to the extension of company identities into campaigns, promotions, and exhibits.
Prerequisites: GRA301 Intermediate Computer Graphics, and GRA351 Graphic Design I.

GRA411 Advanced Typography [1-4, 3 cr.]
This studio course is a continuation of the applications of typography as an expressive and functional vehicle. Students build upon the vocabulary they have already learned, in GRA212 Introduction to Typography, by mastering a series of typographic visual problems. The students are introduced to a variety of typographic models and techniques. Emphasis is placed upon the development of an understanding of typographic values, and the concurrent development of typographic design style. Students will analyze and sequence, as well as hierarchies in the completion of the graphic design projects for print and/or digital media. The course includes a project on an Arabic type design, an attempt to modernize the Arabic script.
Co-requisite: GRA451 Graphic Design III.

GRA431 History of Graphic Design [1-4, 3 cr.]
This course is a comprehensive survey of the history of graphic design, from the development of writing systems, to the proliferation of digital technology.
Co-requisite: ENG102 English II.

GRA432 Visual Perception [1-4, 3 cr.]
This course is a comprehensive examination of the development of visual language, in relation to human visual perception. It includes the investigation of symbolic representation from abstract to realistic symbols, and how human biological and psychological processes influence the way humans interpret and create visual artifacts.
Prerequisites: GRA271 History of Design, and ENG202 Sophomore Rhetoric.

GRA451 Graphic Design III [1-4, 3 cr.]
This advanced level studio course is an in-depth exploration and application of a variety of two and three-dimensional media, in the creation of an original identity mark, to the application of the mark driven identity to a variety of media. The development of the visual identity program includes documentation of its applications through the formation of design standards. Creative ideas are encouraged through research, and through practical applications. These applications may include a variety of printed, electronic, and three-dimensional media.
Prerequisite: GRA352 Graphic Design II.
Co-requisites: GRA411 Advanced Typography, and CST202 Cultural Studies II.

GRA452 Graphic Design IV [1-4, 3 cr.]
This course is the final studio course in the Graphic Design Program, and serves as a bridge to independent problem solving, and professional experience. The course includes the in-depth exploration of a specific area of graphic design, through a final project, as well as discussions of current and relevant business, and legal, issues found in the workplace. In addition, this course prepares advanced graphic design students for the profession of graphic design, through their production of an effective portfolio, and through self-promotion, and identity system. This course includes a series of jury and critique sessions, attended by professional designers, to share comments and ideas on the students' projects.
Prerequisite: GRA451 Graphic Design III.
Co-requisite: CST302 Cultural Studies III.

GRA455 Advertising Design [1-4, 3 cr.]
This course is about investigating the relationship between creativity and sales. The students will learn how the art director and copywriter conceptualize the advertising campaign using creative, intelligent, and persuasive skills. The course involves hosting professionals to lecture about working in the field. Emphasis is on developing new directions in advertising, through conceptual thinking methods. Students will learn the principles of advertising design, and layout, to create advertising concepts via text and image.
Prerequisite: GRA352 Graphic Design II.

GRA462 Graphic Design Seminar [2-2, 3 cr.]
This course serves as an in-depth seminar on subjects of current interest in graphic design. This seminar is a comprehensive studio course including lectures, demonstrations, and assignments.
Prerequisite: CST202 Cultural Studies II.

GRA481 Digital Media Seminar [2-2, 3 cr.]
This course exposes students to the narrative and representational strategies in animation, both traditional and experimental. It is an extensive research into the meanings and potentials of time-based media, and the different representational techniques, and/or environments for animation.
COURSE DESCRIPTIONS

GRA482 Motion Design [1-4, 3 cr.]
This course introduces students to the concepts and applications of design in motion. It focuses on time-based work that combines type, images, sound and video, and exposes students to the critical, and the methodological, procedures of motion design.

GRA484 Web Design [1-4, 3 cr.]
This course is an introduction to Web design and applications. It is an extensive exposition of the different aspects of the Internet structures and content. It provides students with the ability to build, design, and develop, a website from scratch.

GRA486 Advanced Interactive Design [1-4, 3 cr.]
This course exposes students to thorough, and elaborate, interactive concepts and techniques for games and short applications. It is an extensive investigation in the interface, the mechanism, the controls, and the aims of interactive work.

GRA487 3D Animation Techniques [1-4, 3 cr.]
This studio focuses on providing the students with three-dimensional modeling, rendering, and animation skills. It introduces students to design spaces. Students will investigate the meaning, and the possibilities, of creating spaces and environments for imaging and animation.
Prerequisites: GRA481 Animation Concepts.

GRA490 Graphic Design Internship [1 cr.]
This course is an exploration of “real world” scenarios and business, in the field of graphic design. The student, under the guidance of a supervisor in a professional environment, will become acquainted with the procedures and methods in the field of graphic design. Valuable work experience and credit are gained in translating graphic design concepts into professional assignments.
Prerequisite: GRA352 Graphic Design II.

GRA499 Digital Media/Senior Study [1-4, 3 cr.]
This course is a project-based class that focuses on discussion, analysis, and critique, of senior studies that students will be developing. The project consists of intent based on a conceptual framework, a process of research and investigation in the different application of the intent, and the development of a senior study in digital media.
Prerequisites: GRA481 Animation Concepts, GRA482 Motion Design, and GRA484 Web Design.

HEALTH

HLT201 Basic Health [0-1, 1 cr.]
This course covers the basic knowledge of general health and fitness, first aid, nutrition, mental health, disease, drugs, tobacco, and sex education.

COURSE DESCRIPTIONS

HISTORY

HST201 Survey of Arab History [3-0, 3 cr.]
This course examines the political, and cultural, history of the Arabs from Pre-Islamic Arabia, with special emphasis on the Middle Eastern history from the Ottoman Conquest in the 16th Century to the present.

HST210 Phoenician Culture [3-0, 3 cr.]
This course introduces the culture of the Phoenicians, its development in both ancient Phoenicia and the Mediterranean basin, its interaction with the ancient world, and the growing eclecticism of that interaction. The course encompasses a number of cultural aspects, an introduction to the Phoenician alphabetical system and its role in the history of human civilization, appreciation of Phoenician art, and the analysis of its cultural content, and a general survey of the economic, religious, and philosophical, elements of the Phoenician culture.

HST311 European History since 1914 [3-0, 3 cr.]
This course discusses the major themes in the history of 20th Century Europe. The starting date is the outbreak of World War I. The course emphasizes the intellectual, social, and economic trends, and the structural changes whose impact continues to the present. The dwarfing of Europe, and the reaction of Africa and Asia to the European hegemony, the emergence of the super powers, the impact of the Communist theory, and the Soviet example, as well as the recent developments in Russia and Eastern Europe, will be analyzed. Intellectual, scientific and artistic trends will be surveyed.

HST312 Europe & the Middle East in the 19th & 20th Centuries [3-0, 3 cr.]
This course examines the ties between Europe and the Middle East in the 19th and 20th Centuries, focusing on the reaction of the Middle Eastern society to European intervention, and influence.
Prerequisite: HST201 Survey of Arab History, or HST311 European History since 1914, or the consent of the Instructor.

HST313 Revolution in Modern History [3-0, 3 cr.]
This course examines the causes and nature of revolution in the Modern Age, and includes a detailed study of the most significant revolutionary movements.
Prerequisite: HST201 Survey of Arab History, or HST311 European History since 1914, or the consent of the Instructor.

HST321 History of Lebanon [3-0, 3 cr.]
This course studies the modern history of Lebanon, starting from Fakhr El Din al Ma’ani, in the 17th Century, to the aftermath of the 1975 civil war, highlighting the developments leading to the emergence of the Greater Lebanon, the French Mandate, and the social, economic, and political developments since independence.

HST325 The Rise & Development of Islam [3-0, 3 cr.]
This course surveys the pre-Islamic Arabia, the advent of Islam, and its principal tenets, focusing on the Omayyads and Abbasids and their cultural achievements, as well as their impact upon civilization.
INTERNATIONAL AFFAIRS (GRADUATE)

INA811 Theories of International Relations [3-0, 3 cr.]
This course examines the main theoretical approaches to the study of international relations. It involves a comprehension of each theory, its critique, and its usefulness as a tool of analysis.

INA812 Foreign Policy Analysis [3-0, 3 cr.]
This course examines the various factors influencing foreign policy-making, including the setting of the state in the international system, the nature of the political system, the socio-economic environment, and the personalities, beliefs, perceptions, and attitudes of decision-makers.

INA813 Topics in International Relations [3-0, 3 cr.]
This course involves an analysis of salient political issues and concepts in international relations (with the selection left up to the discretion of the Professor).

INA814 Topics in Middle East International Relations [3-0, 3 cr.]
This course involves an in-depth study of contemporary Middle Eastern issues, involving a review of the intra-regional ties, against a backdrop of indigenous regional factors, and the impact of international actors’ policies on the area.

INA815 Topics in International Organizations [3-0, 3 cr.]
This course entails case studies on how international actors behave under the institutional restraints of the United Nations. The cases include collective security, disarmament, peaceful settlement, peace-keeping, social and technical cooperation, and international trade and finance management to promote economic development.

INA821 Diplomacy and Bargaining [3-0, 3 cr.]
This course focuses on the art and techniques of political bargaining. After theories of bargaining are surveyed, actual negotiations between states are studied and simulated to inject diplomacy with a dose of realism.

INA831 International Political Economy [3-0, 3 cr.]
This course examines the basis of the international political economy, and analyzes interactions between economic and political factors on the international levels. Discussion issues include international finance and international trade, and the role of governmental, and non-governmental, international organizations.
### COURSE DESCRIPTIONS

**MTH200 Mathematics for Life Sciences [3-0, 3 cr.]**
This course is intended for students majoring in life sciences, and covers the following topics: linear, exponential, and logarithmic functions, the series of equations and matrices, the methods of integration, Maclaurin series, maximization and minimization, introduction to linear programming, and introduction to differential equations.
Prerequisite: Sophomore Standing.

**MTH201 Calculus III [3-0, 3 cr.]**
This course covers the hyperbolic functions and inverse hyperbolic functions; applications of integrals: volumes by slicing and rotation about an axis, modeling volume using cylindrical shells and washers, and moments and centers of mass, integration techniques: basic integration, formulas, integration by parts, partial fractions, trigonometric substitutions, and improper integrals, and infinite series: limits of sequences of numbers, subsequences, bounded sequences, integral test, comparison tests, ratio and root tests, alternating series, absolute and conditional convergence, power series, Taylor and Maclaurin series, and applications of power series, as well as polar functions, and polar coordinates, calculus of polar curves, introduction to multivariable functions: functions of several variables, and partial derivatives, and multiple integrals: double integrals, areas, moments and centers of mass, and double integrals in polar form.
Prerequisite: MTH102 Calculus II.

**MTH206 Calculus IV [3-0, 3 cr.]**
This course deals with vectors and motion in space including: Cartesian coordinates and vectors in space, dot and cross products, lines and planes, cylinders and quadric surfaces, vector-valued functions and space curves, arc length and the unit tangent vector T, TNB Frame, tangential and normal components of a(t), multivariable functions and their derivatives: functions of several variables, limits and continuity in higher dimensions, partial derivatives, the chain rule, directional derivatives, gradient vectors, tangent planes, linearization and differentials, extreme values and saddle points, multiple integrals: triple integrals in rectangular coordinates, masses and moments in three dimensions, triple integrals in cylindrical and spherical coordinates, and substitution in multiple integrals, vector fields: line integrals, potential functions and conservative vector fields, Green’s Theorem, and surface integrals: Fourier Series: periodic functions, Fourier integrals, Fourier Transforms, and half range functions.
Prerequisite: MTH201 Calculus III.

**MTH207 Discrete Structures I [3-0, 3 cr.]**
This course covers the foundations of discrete mathematics, as they apply to computer science. The course is an introduction to propositional logic, proof techniques, functions, relations, sets, cardinality and countability, Boolean algebra, de Morgan’s laws, logical connectives, truth tables, normal forms, validity, minimization, matrices, elementary number theory, properties of primes, greatest common divisors and least common multiples, Euclid’s algorithm, modular arithmetic, counting arguments, permutations and combinations, and binomial coefficients.

**MTH301 Linear Algebra [3-0, 3 cr.]**
This course is an introductory course in linear algebra, where students are exposed, for the first time, to a balance of computation, theory, and applications. Topics include the systems of linear equations, vector spaces, linear dependence, bases, linear transformations, matrices, determinants, eigenvalues, and eigenvectors.
Prerequisite: MTH201 Calculus III.

**MTH302 Geometry [3-0, 3 cr.]**
This course presents an investigation of the axiomatic foundations of modern geometry. More specifically, Euclidean geometry is discussed in detail. Less emphasis will also be placed on spherical, and/or hyperbolic geometries.
Prerequisite: Junior Standing.

**MTH303 Numerical Methods [3-0, 3 cr.]**
This course compares and contrasts various numerical analysis techniques, in addition to error definition, stability, the machine precision concepts, inexactness of computational approximations, the design, code, test, and debug programs that implement numerical methods, floating-point arithmetic, convergence, iterative solutions for finding roots (Newton’s Method), curve fitting, function approximation, numerical differentiation and integration, explicit and implicit methods, differential equations (Euler’s Method), and finite differences.
Prerequisite: MTH201 Calculus III.

**MTH304 Differential Equations [3-0, 3 cr.]**
This course covers the topics of first order ordinary differential equations and applications, linear higher order differential equations and applications, systems of linear differential equations, series of differential equations and solutions, and Laplace transforms.
Prerequisite: MTH201 Calculus III.

**MTH305 Probability and Statistics [3-0, 3 cr.]**
This course covers, essentially, the distribution theory, and the estimation and tests of statistical hypotheses. More specifically, the topics of this course include random variables, conditional probability, independence, expectation, standard discrete and continuous distributions, regression and correlation, and point and interval estimation. Also included are illustrations from various fields.
Prerequisite: MTH201 Calculus III.

**MTH306 Non-Linear Dynamics and Chaos [3-0, 3 cr.]**
This course covers the topics of iteration, fixed and periodic points, graphical analysis of iteration, stable and unstable orbits, attracting and repelling periodic points, iterations of a quadratic family, Julia sets, Mandelbrot sets, fractals, and chaos.
Prerequisite: MTH201 Calculus III.
MTH307 Discrete Structures II [3-0, 3 cr.]
This course covers the predicate logic, and universal and existential quantification, the limitations of predicate logic, the recurrence relations, the elementary solution techniques, graphs and trees, formal proofs, computational complexity and order analysis, elementary computability, and the definition of the P and NP classes, as well as simple demonstration of the halting problem.
Prerequisite: MTH207 Discrete Structures I.

MTH309 Graph Theory [3-0, 3 cr.]
This course covers the fundamental concepts and methods of graph theory, and their applications in various areas of computing. Topics include graphs as models, representation of graphs, trees, distances, matching, connectivity, and flows in networks, graph colorings, Hamiltonian cycles, traveling salesman problem, and planarity.
Prerequisite: MTH201 Calculus III.

MTH311 Abstract Algebra [3-0, 3 cr.]
This course studies the algebra of sets, the definition and basic properties of groups, rings, and fields, and the divisibility theorems for integers and polynomials.
Prerequisite: MTH201 Calculus III.

MTH320 Applied Actuarial Statistics I [3-0, 3 cr.]
This course studies the single life survival models, severity models, multiple life survival models, and multiple-decrement survival models.
Prerequisite: MTH305 Probability and Statistics.

MTH321 Applied Actuarial Statistics II [3-0, 3 cr.]
This is a course in distribution-free statistical analysis of data based on ranks. Topics include statistical tests for one-sample problems, k-related-sample problems, and k-independent-sample problems, as well as the measures of association among variables in non-normal distribution.
Prerequisite: MTH207 Discrete Structures I, and Junior Standing.

MTH402 Theory of Interest [3-0, 3 cr.]
This course is an intensive study of interest, including the measurement of interest, the accumulation and discount of money, the present value of a future amount, the forces of interest and discount, equations of value, annuities (simple and complex), perpetuities, amortization and sinking funds, yield rates, bonds, and other securities, and installment loans (depreciation, depletion and capitalized cost).
Prerequisite: MTH320 Applied Actuarial Statistics I.

MTH406 Life Contingencies I [3-0, 3 cr.]
This course covers single life functions, the measurement of mortality, life annuities, life insurance, net annual premiums, and net level premium reserves.
Prerequisite: MTH321 Applied Actuarial Statistics II.

MTH408 Life Contingencies II [3-0, 3 cr.]
This course is a continuation of Life Contingencies I. It covers multiple life functions, multiple decrement models, advanced multiple life theory, and population theory.
Prerequisite: MTH406 Life Contingencies I.

MTH421 Financial Derivatives [3-0, 3 cr.]
This course is cross listed with the existing course FIN421 Financial Derivatives.

MTH497 Topics in Actuarial Mathematics [3-0, 3 cr.]
This course covers a variety of topics, such as the estimation of tabular survival models from complete and incomplete data samples and study design, using moment and maximum likelihood procedures. It also covers the estimation of parametric survival models, the estimation of survival models, from the general population theory, and the graduation of life tables.
Prerequisite: MTH408 Life Contingencies II.

MTH498 Topics in Mathematics [3-0, 3 cr.]
This course covers selected topics in mathematics. It may be repeated for credits.

MTH499 Senior Study [3-0, 3 cr.]
Prerequisite: Senior standing.

MUS201 Fundamentals of Music [0-3, 3 cr.]
This course covers the basic principles of note values, clef-reading rhythms, scales, writing on the music staff, sight-singing, and dictation. It entails a practical experience through playing of the recorder.

MUS202 Chorale [0-3, 1 cr.]
This course is an experience in singing the sacred and secular music of all the Periods. It entails three rehearsals per week, and public performances, on and off-campus. Up to three credits may be earned, in three separate semesters. Admission to this course is by audition. This course is offered every semester.

MUS301 Music Education [3-1, 3 cr.]
This course is a survey of the development of Western music from ancient times, through the Baroque, Classical, and Romantic periods, to the 20th Century, and contemporary forms of musical expression. CDs and tapes illustrate the forms, styles, and characteristics of the Periods and composers. Emphasis on the place and the influence of music as a part of general culture are covered.

MUS311 Survey of Western Music [0-3, 3 cr.]
This course is a survey of the development of Western music from ancient times, through the Baroque, Classical, and Romantic periods, to the 20th Century, and contemporary forms of musical expression. CDs and tapes illustrate the forms, styles, and characteristics of the Periods and composers. Emphasis on the place and the influence of music as a part of general culture are covered.
COURSE DESCRIPTIONS

MUS312 Survey of Middle Eastern Music [0-3, 3 cr.]
This course is a survey of the historical sources, and the development of the underlying principles, forms, modes, and rhythms, of Middle Eastern music. CDs and tapes, and, whenever possible, live vocal or instrumental performances, illustrate important styles, modes, and instrumentation. Music is studied in the context of the general Middle Eastern culture.

PHOTOGRAPHY

PHO211 Photography I [2-3, 3 cr.]
This course is an introduction to the basic photographic methods. It covers an applied study in pictorial composition, and darkroom procedures, in relation to advertising.

PHO212 Photography II [2-3, 3 cr.]
This course examines the use of still photography as a means of documenting contemporary society, application of the medium to visual analysis, and presentation of that society.

PED211 Beginning Swimming [0-2, 1 cr.]
This course is an introduction to the basic strokes in swimming, hence the freestyle, breaststroke, backstroke and butterfly. It covers the basic safety skills, and the elementary forms of rescue, and artificial respiration.

PED218 Beginning Table Tennis [0-2, 1 cr.]
This course covers the theory, practice, rules knowledge, and basic stroke techniques and skills including the forehand, backhand, serve, etc...

PED221 Beginning Tennis [0-2, 1 cr.]
This course covers the theory, practice, rules knowledge, and basic stroke techniques and skills including the forehand, backhand, serve, etc...

PED231 Modern Dance [0-2, 1 cr.]
This course emphasizes individual creativity.

PED232 Folk Dance [0-2, 1 cr.]
This course involves the development of coordination and grace, rhythmic awareness, and emphasis on international understanding.

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PED232 Folk Dance [0-2, 1 cr.]
This course involves the development of coordination and grace, rhythmic awareness, and emphasis on international understanding.
PED251 Basketball [0-2, 1 cr.]
This course covers the theory, practice, rules knowledge, and development of the different skills in basketball which include passing, shooting, dribbling, teamwork, and game strategies.

PED261 Volleyball [0-2, 1 cr.]
This course covers the theory, practice, rules knowledge, and development of the different skills in volleyball which include overhead and underarm passing, spiking, serving, digging, blocking, etc.

PED271 Taekwondo [0-2, 1 cr.]
This course introduces students to the modern martial art, originating in Korea, which is characterized by its fast, high, and spinning kicks. It teaches discipline, self-control, and most importantly, self-defense. It is the “art of unarmed combat.”

PED291 Physical Fitness [0-2, 1 cr.]
This course is a basic introduction to fitness, including anatomical and physiological considerations, and the latest research relating to fitness. This course aims at encouraging students to adopt healthy lifestyles, and to engage in stretching, flexibility, and light weights training programs.

> PHYSICS

PHY101 Introduction to Physical Science [3-3, 4 cr.]
This course is an introduction to essential concepts of astronomy, physics, chemistry, and geology for non-science majors.

PHY111 Mechanics [3-3, 4 cr.]
This course deals with the mechanics and properties of matter, vectors and scalars, linear and circular motion, dynamics of particles, work and power, energy and the conservation theorems, simple harmonic motion, gravitational forces and the properties of solids and fluids, and heat and thermodynamics.
Prerequisite: MTH102 Calculus II, or concurrently.

PHY201 Electricity and Magnetism [3-3, 4 cr.]
This course deals with electricity and magnetism, Coulomb’s Law, Gauss Theorem, electric field and potentials, Ampere’s Law and magnetic field, electrical current and Ohm’s Law, electromagnetic induction, alternating current and electromagnetic wave, as well as optics including refraction, interference and diffraction.
Prerequisite: MTH201 Calculus III.

PHY211 Statics [3-0, 3 cr.]
This course is a review of vector algebra, forces, moment and couples, free body diagrams and application to beams, frames, arches, planes, trusses, center of gravity, and friction and virtual work.
Prerequisite: Sophomore standing.

PHY301 Classical Physics for Life Sciences [3-0, 3 cr.]
This course is divided into three main parts. The first part covers Newtonian Mechanics of a particle, Thermodynamics, and the study of Fluids and Solids. It begins with the study of Kinematics, (geometrical analysis of the motion of a particle), continues with Newton’s Laws of motion (kinetics), and then proceeds to the study of Energy and Momentum (work/energy theorem). The second part deals with temperature and heat, leading to the definition of entropy and to the laws of thermodynamics. The last part defines fluids, and their density and pressure, leading to the Bernoulli Equation, then defines solids, and their stress and strain relationships, with regards to Young’s modulus.
Prerequisite: MTH200 Mathematics for Life Sciences.

PHY302 Classical Physics for Life Sciences Lab [0-3, 1 cr.]
This course includes experiments covering linear momentum, such as: rotational motion, Newton’s Law of Motion, equilibrium and elasticity, work and energy, temperature, heat and thermal properties of matter, laws of thermodynamics, collision, pendulum, Boyle’s Law, fluid mechanics, coefficient of viscosity, and waves and optics.
Pre- or co-requisite: PHY301 Classical Physics for Life Sciences.

PHY305 Modern Physics for Life Sciences [3-3, 3 cr.]
This course covers Coulomb’s Law of Electrostatics, the study of moving charges (electric current, DC or AC), electromagnetism, wave phenomena, light and optics, introduction to relativity, atomic energy levels, nuclear mass/energy relationship, and energy decay phenomena (radiation and nuclear physics). This course is designed in a way to show the application of some of the above fields in biological systems, and medicine, when possible.
Prerequisite: MTH200 Mathematics for Life Sciences.

PHY306 Modern Physics for Life Sciences Lab [0-3, 1 cr.]
This course includes experiments covering Coulomb’s Law, electric field for parallel plate, electric field for concentric cylinders, parallel plate capacitors, resistance, resistors in series and parallel, Wheatstone Bridge, basic oscilloscope operation, measurement of magnetic induction fields, solenoids and Faraday’s Law, charge to mass ratio of the electron, Ohm’s Law, and Plank’s Constant and Atomic Spectroscopy.
Pre- or Co-requisite: PHY305 Modern Physics for Life Sciences.

PHY311 Dynamics [3-0, 3 cr.]
This course covers kinematics and kinetics of particles, systems of particles, and kinetics of rigid bodies.
Prerequisites: MTH201 Calculus III, and PHY211 Statics.

PHY321 Introduction to Modern Physics [3-0, 3 cr.]
This course is an introduction to modern physics, including relativity, photoelectric effect, wave nature of particles, atomic and molecular spectra, models of the nucleus, nuclear reactions, and elementary particles.
Prerequisites: PHY201 Electricity and Magnetism, and MTH201 Calculus III.
POLITICAL SCIENCE

POL201 Introduction to Political Science [3-0, 3 cr.]
This course covers politics as a social science. It deals with the basic concepts in political science: power, authority, leadership, decision making, etc., as well as the relevant political ideologies, and contemporary political systems, and their modes and functions.

Prerequisite: POL201 Introduction to Political Science.

POL202 Lebanese Politics and Administration [3-0, 3 cr.]
This course is a comprehensive survey of the political system in Lebanon, from independence to the present. It entails a detailed coverage of the Lebanese administrative and constitutational law.

Prerequisite: POL201 Introduction to Political Science.

POL211 History of Political Thought I [3-0, 3 cr.]
This course surveys the history of political ideas from the Greeks to the 18th Century. Discussion of the political ideas related to the general philosophy of each author’s historical, and political, background. The readings are from original sources.

Prerequisite: POL201 Introduction to Political Science.

POL212 History of Political Thought II [3-0, 3 cr.]
This course is a follow-up to POL211 History of Political Thought I, covering political ideas from the Renaissance to the present. The readings are from original sources.

Prerequisite: POL201 Introduction to Political Science.

POL221 Comparative Governments of the Major Powers [3-0, 3 cr.]
This course deals with the comparative history and the developments of governments, and new approaches to studying them. It also covers the “whys” and “wherefores” of various political systems, as well as comparisons between them.

Prerequisite: POL201 Introduction to Political Science.

POL231 Introduction to Human Rights [3-0, 3 cr.]
This course deals with the international human rights’ policies, and the moral, and political, issues to which they give rise. The course poses questions such as: What are human rights, and what reasons are there for thinking that persons have rights? Are some rights more basic than others, and what compelling interests, if any, justify their violation?

Prerequisite: POL201 Introduction to Political Science.

POL311 Methodology and Political Analysis [3-0, 3 cr.]
This course covers the scope, and the methods of techniques, of political science, and alternative approaches to political science research. It also covers the techniques of using materials and mechanics of research.

Prerequisite: POL201 Introduction to Political Science.

POL312 Politics of the Developing Areas [3-0, 3 cr.]
This course is a thorough study of the functional systems approach to the politics of developing areas. Aspects of political development such as: participation, leadership, organization, legitimacy, and integration, as affected by the analysis of culture and social organization, are covered. The course focuses on the role of the military of developing nations, and the phenomena of one-party systems.

Prerequisite: POL201 Introduction to Political Science.

POL313 Concepts of International Relations [3-0, 3 cr.]
This course deals with the nature of the international system, and the states as units of it. It covers nationalism, the theory and reality of sovereignty, national power and resources, the balance of power, and foreign policy and its making. Objectives and interests of states, diplomacy, propaganda, political warfare, international law, pacific settlement of disputes, and international organizations are covered. The course involves case studies, and individual, or collective, research by students to substantiate the concepts.

Prerequisite: POL201 Introduction to Political Science.

POL321 American Government and Politics [3-0, 3 cr.]
This course covers the structure and process of the American federal political system. Topics include the nature of American democracy, the constitutional framework, political attitudes, socialization and participation, political parties and elections, and the Federal decision-making process.

Prerequisite: POL201 Introduction to Political Science.

POL322 Foreign Policy of the Major Powers [3-0, 3 cr.]
This course is a survey and analysis of the policies of the great powers in the post-cold war period. It covers the changing patterns of ties between the great powers, in light of the USSR’s disintegration, Russia’s revival, the end of the cold war, Japan’s and Germany’s rise as economic giants, China’s economic growth, as well, it covers European integration and the United Nation’s revival. The domestic and international influences on great power decision-making, notably security and economic matters, area also covered.

Prerequisite: POL201 Introduction to Political Science.

POL323 Middle East Governments and Politics [3-0, 3 cr.]
This course deals with the major issues and problems dominating the Middle East’s political systems. Issues covered include: nationalism, religion, ethnicity, classes patronage, democratization, etc.

Prerequisite: POL201 Introduction to Political Science.

POL331 International Organization [3-0, 3 cr.]
This course covers the concepts and the evolution of international organization. It encompasses the structure and the evolution of the United Nations, with emphasis on collective security, pacific settlements of disputes, peacekeeping operations, and economic and social developments.

Prerequisite: POL201 Introduction to Political Science.

POL332 Public International Law [3-0, 3 cr.]
This course covers the nature of international law sources, international law and municipal law, the international systems’ legal organization, states (their territory and jurisdiction) as subjects of international law, international treaties and agreements, diplomatic and consular agents, laws of war, neutrality, belligerent occupation, and war crimes. The course involves case studies on the laws of nations’ principles.

Prerequisite: POL201 Introduction to Political Science.
POL421 The Middle East in International Affairs [3-0, 3 cr.]
This course is a survey and analysis of the Middle East relations in their regional and international context. Relevant regional and international issues, with a bearing on the politics of the region’s states are discussed.
Prerequisite: POL201 Introduction to Political Science.

POL431 International Regional Organizations and Agencies [3-0, 3 cr.]
This course covers the nature of international organizations, and the legal foundations of international regional organizations, and their relations to the United Nations. The course also covers the types of international regional organizations, and their varied functions, the political and economic significance of these organizations, as well, the course deals with the study of one regional organization in some depth. When available, talks are given by United Nations personnel. The student is required to prepare a short research project.
Prerequisite: POL201 Introduction to Political Science.

POL432 Diplomatic and Consular Services [3-0, 3 cr.]
This course covers the structure, functions, and procedures, of diplomatic and consular services. It also covers the recruitment of diplomatic and consular personnel, diplomacy and diplomatic theory, and diplomatic privileges and immunities. Field trips to the Lebanese Foreign Ministry, and to some embassies in Lebanon, as well as encounters with diplomats and consuls, direct students on the functional aspects of diplomatic, and consular life.
Prerequisite: POL201 Introduction to Political Science.

POL433 The UN System and Problems of Development [3-0, 3 cr.]
This course is divided into two parts. The first focuses on the process and politics of the United Nations system, such as the Secretariat, General Assembly, administrative and budgetary coordination, program coordination, Economic and Social Council, field administration, and program decentralization through the regional economic commissions. The second part covers the developmental functions, the role of the international agencies in the political and economic development, as well as the concepts of integration, and the problems of collaboration with international institutions.
Prerequisites: POL201 Introduction to Political Science.

POL499 Senior Study [3-0, 3 cr.]
This course is an independent scholarly work on a topic chosen by the student.
Prerequisite: Senior Standing.

6 This is an elective course and it may be offered at irregular intervals

PSYCHOLOGY

PSY201 Introduction to Psychology [3-0, 3 cr.]
This course explores the aspects of our life, and the basic facts and research methods. The course will give students a better understanding of why people think and act the way they do, and provides more insight into our own attitudes and reactions.

PSY202 Child Psychology [3-0, 3 cr.]
This course deals with the different aspects of the prenatal period through the middle years of childhood. It focuses on the psychology, the social intellectual and psychological aspects of behavior, and the factors that are involved in the process of development.

PSY203 Psychology of Youth [3-0, 3 cr.]
This course focuses on the changes experienced by the young people at the various levels, including, but not limited to, the physical, cognitive, and emotional level. It highlights the effects of the surrounding factors leading to maturity, namely the family, peers, dating, and the media. It also covers the obstacles faced by the adolescent in terms of drugs, and deviance.
Prerequisite: PSY201 Introduction to Psychology, or PSY202 Child Psychology.

PSY204 Social Psychology [3-0, 3 cr.]
This course studies the social influence that society has upon the beliefs and behavior of individuals. This course covers topics which include conformity, propaganda, persuasion, social cognition, attraction, aggression, and prejudice.
Prerequisite: PSY201 Introduction to Psychology, or SOC201 Introduction to Sociology.

PSY301 Physiological Psychology [3-0, 3 cr.]
This course aims at providing the student with a survey of the important areas of physiological psychology. It also helps students to understand the basic mechanisms underlying human behavior, with emphasis on the functioning of the human brain.
Prerequisite: BIO101 Introduction to Biological Science, or PSY201 Introduction to Psychology.

PSY311 The Exceptional Child [3-0, 3 cr.]
This course introduces students to the field of special education and exceptionality, and it teaches students to develop an understanding approach towards children, and youth, with conduct behavior disorder.
Prerequisite: PSY201 Introduction to Psychology, or PSY202 Child Psychology.

PSY322 Cognitive Psychology [3-0, 3 cr.]
This course covers cognitive psychology which seeks to examine the domain of cognition in child development. The course is designed to focus on a broad foundation of cognitive development, and the intellectual changes that accompany children’s physical growth.
Prerequisite: PSY203 Psychology of Youth.
**COURSE DESCRIPTIONS**

**PSY325 Abnormal Psychology [3-0, 3 cr.]**
In this course, students examine the field of abnormal psychology, surveying the major psychological disorders and their classification. Causes and treatments of the major disorders are explored from various theoretical perspectives.
Prerequisite: PSY201 Introduction to Psychology, and Senior standing.

**PSY335 Consumer’s Psychology [3-0, 3 cr.]**
This course deals with the consumer-oriented marketing, and how the consumer makes their choice through decision making. It concentrates on both perceptual processes, as well as the cognitive and behavioral learning of the consumer.

**PSY421 Theories of Personality [3-0, 3 cr.]**
This course provides a comprehensive coverage of the most influential theories of personality. It also examines the interplay of forces that shape the individual’s personality throughout the course of life.
Prerequisite: PSY201 Introduction to Psychology.

**PSY422 Psychology of Learning [3-0, 3 cr.]**
This course provides an analysis of the factors in learning, through a survey of the major theories of learning. Special emphasis is placed on the learning principles and their implications in the teaching process.
Prerequisite: PSY201 Introduction to Psychology.

**PSY498 Topics in Psychology [3-0, 3 cr.]**
This course deals with an area of psychology, or a topic that is not usually dealt within the other psychology offerings. It is aimed at helping students to understand, and to evaluate, relative concepts in human development.
Prerequisite: PSY203 Psychology of Youth, or EDU201 Fundamentals of Education, or SOC201 Introduction to Sociology.

**PSY499 Senior Study [3-0, 3 cr.]**
This course is an independent scholarly work on a topic chosen by the student.

**SOCIOLOGY/SOCIAL WORK**

**SOC201 Introduction to Sociology [3-0, 3 cr.]**
This course introduces students to the basic concepts and processes governing social relationships, as well as scientific approaches dealing with explaining social phenomenon. Various social institutions are examined.

**SOC212 Communication Media and Society [3-0, 3 cr.]**
This course studies forms of communication, especially mass communication, as elements of cultural and social processes. It is interdisciplinary, drawing on a variety of theories and methods of media studies such as semiotics, linguistics, textual studies, philosophy, political economy, and cultural studies.
Co-requisite: ENG202 Sophomore Rhetoric.

**SOC215 Introduction to Gender Studies [3-0, 3 cr.]**
This course examines what it means to be a man or a woman, from a variety of interdisciplinary perspectives. It explores the construction of masculinities and femininities in a variety of cultural contexts. Special attention is given to gender differences, and gender inequalities.

**SOC301 Introduction to Social Work [3-0, 3 cr.]**
This course is an introduction to the profession of social work, its basic philosophy, principles, and methodologies. Special emphasis is given to the practice of social work in Lebanon.

**SOC303 Urban Sociology [3-0, 3 cr.]**
This course is a survey of the city as a historical development, in relation to economic, social, and political factors from the early settlements to the development of contemporary urbanism. It deals with a broad overview of the current planning theories, from the context of modernist ideals to the social studies of planners and sociologists.

**SOC304 Sociology of Religion [3-0, 3 cr.]**
This course examines the historical and contemporary relationships between social groups, and their sacred symbols and objects, including the forms and functions of religion, religious beliefs and rituals, the politics and economics of religion, identity politics, as well as religious movements.

**SOC311 Social Problems [3-0, 3 cr.]**
This course provides an analysis of the natural causes, and the types of social problems in modern society, notably in the Middle East. Selected social problems are studied, including various theories on such problems, and a critical review of the proposed solutions.

**SOC313 Family and Child Welfare [3-0, 3 cr.]**
This course develops in students a knowledge of, and concern for, child welfare services through parents’ and children’s needs, and acquaints them with the existing services for parents and children.

**SOC321 Sociology of the Arab World [3-0, 3 cr.]**
This is a seminar for students interested in understanding the Arab world’s social structures, with emphasis on major institutions and values, viewed from a three-dimensional perspective, namely: habitat, ethnic composition, and history.

**SOC401 Sociological Theories [3-0, 3 cr.]**
This course is an advanced study of the classical and modern sociological theories including, but not limited to, the works of Durkheim, Marx, Weber, Bourdieu, Giddens, Hall, and Norbert Elias.

**SOC402 Social Work Intervention [3-0, 3 cr.]**
This course emphasizes communication and interviewing skills in social work, building professional relationship, stages of the helping process, and need assessment methods and skills.
COURSE DESCRIPTIONS

SOC403 Social Work Intervention II [3-0, 3 cr.]
This course examines various interventional roles, methods, and techniques in social work, which include planning and contracting, identifying alternative interventions, selecting and implementing appropriate courses of action, monitoring, evaluating, and terminating.

SOC404 Social Work Practicum I [3-0, 3 cr.]
In this course students are given a field experience to apply specific skills, and knowledge of working with individuals and families, in different social welfare settings.

SOC405 Social Work Practicum II [3-0, 3 cr.]
Emphasis, in this course, is given on working with groups in different social contexts. It covers the development of professional skills in dealing with different actors in a situation.

SOC488 [3-0, 3 cr.]
This course covers topics in Sociology.

SOC499 Senior Study [1-6, 3 cr.]
Prerequisite: Senior Standing.

SPECIAL ARABIC

SAR105 Colloquial Arabic I [3-0, 3 cr.]
This course is designed for non-native speakers beginning their study of colloquial Arabic. It progresses methodically, aided by materials that are based on a comparative linguistic analysis of English and Arabic. The course follows an aural-oral approach.

The course is only open to students exempted from Arabic.

SAR106 Colloquial Arabic II [3-0, 3 cr.]
This course is designed to establish a mastery of the colloquial Arabic sound system, and a practical efficiency in the use of colloquial Arabic grammatical structures, with an expanded vocabulary.
Prerequisite: SAR105 Colloquial Arabic I, or equivalent.
The course is only open to students exempted from Arabic.

SAR111 Standard Arabic I [3-0, 3 cr.]
This course is designed for non-Arabic speakers beginning their study of standard Arabic. The course teaches elementary reading and writing, and establishes basic language skills in the use of the Arabic sound system. It covers a limited vocabulary, and basic standard grammatical structures.
The course is only open to students exempted from Arabic.

SAR112 Standard Arabic II [3-0, 3 cr.]
This course is designed for non-Arabic speakers of modern standard Arabic on the intermediate level. The course teaches grammatical skills, within a slightly expanded vocabulary, enabling students to read unwavelled texts.
Prerequisite: SAR111 Standard Arabic I, or its equivalent.
The course is only open to students exempted from Arabic.

SAR221 Developmental Arabic [3-0, 3 cr.]
This course develops appreciation, and improves skills, in the reading and writing of various types of prose. Individual attention is given to students' linguistic and communicative proficiency.

STATISTICS

STA201 Business Statistics [3-0, 3 cr.]
This course covers probability, random variable, sampling theory, estimation, hypothesis testing, correlation and regression, time series, and index numbers.
No student may receive credit for both STA201 Business Statistics and STA202 Applied Statistics, or STA302 Statistics.

STA202 Applied Statistics [3-0, 3 cr.]
This course is an introduction to the descriptive and inferential statistics, to the measures of central tendency and description, to correlation and regression, and to estimation probability and hypothesis testing.
No student may receive credit for both STA202 Applied Statistics and STA302 Statistics, or STA201 Business Statistics.

STA205 Biostatistics [3-0, 3 cr.]
This course introduces the statistical design and analysis techniques needed to perform pharmaceutical research, and evaluate clinical data. It includes designing epidemiologic and clinical studies, evaluating diagnostic testing procedures, interpreting the use of statistical data in Medical Literature, and using frequently used statistical methods of data analysis. Emphasis is placed on the statistical concepts, and their application to the critical appraisal of clinical and experimental data.

PHA205 Biostatistics [3-0, 3 cr.]
This course introduces statistical design and analysis techniques needed to perform pharmaceutical research, and evaluate clinical data. It includes designing epidemiologic and clinical studies, evaluating diagnostic testing procedures, interpreting the use of statistical data in Medical Literature, and using frequently used statistical methods of data analysis. Emphasis is placed on the statistical concepts, and their application to the critical appraisal of clinical and experimental data.

STA301 Intermediate Business Statistics [3-0, 3 cr.]
This course covers more advanced topics in statistics for business students.
Prerequisite: STA201 Business Statistics.
WOMEN’S STUDIES

WOS311 Issues and Debates in Feminist Theory [3-0, 3 cr.]
This course is designed to explore the major issues and debates in feminist theory. Feminist texts from the Arab world, and other cultures, are used. The course is interdisciplinary and will draw materials from literary criticism, sociology, anthropology, political science, and literature.
Prerequisite: ENG101 English I.

WOS312 Women and Economic Power [3-0, 3 cr.]
This course aims to explain the economic role played by women at both the household and national levels. The main topics include the participation of women in the labor force, wage differentials, and occupational distribution by gender, as well as determinants of women’s active economic participation, and their contribution to national development.
Prerequisites: ECO201 Microeconomics, and ECO202 Macroeconomics.

WOS313 Women in the Arab World: Sociological Perspectives [3-0, 3 cr.]
This course examines the roles and status of Arab women in relation to various societal factors, including a brief overview of the legal rights as stated in the personal status code. Class discussions will analyze the changes by identifying determinants and patterns of change. Students are also introduced to basic gender, and feminist, perspectives on the status of women in Arab societies.
Prerequisite: ENG102 English II.

WOS411 Psychology of Women: A feminist Perspective [3-0, 3 cr.]
This course examines modern psychological theory, especially as it applies to women, from a feminist perspective. Topics include the development of sex differences, gender identity, and the various notions of “the feminine mind.”
Prerequisites: ENG101 English I, and PSY201 Introduction to Psychology or PSY202 Child Psychology.

WOS412 Representations of Women in the Arts and the Media [3-0, 3 cr.]
This course deals with the media, and the various art forms such as cinema, music, poetry, art, the novel, etc., from the Arab and other cultures. Representations of women are examined from a historical perspective, and patterns are identified as a basis for evaluation of women’s position in society.
Prerequisite: ENG101 English I.
THE SCHOOL OF BUSINESS

MISSION

The School of Business at the Lebanese American University is committed to providing its students with an opportunity to learn the foundations, and the latest developments, in their respective fields of business, within a liberal arts environment. Through innovative teaching and research, the Faculty of the School of Business seeks to graduate students with diverse, theoretical, methodological, and practical skills that are needed to succeed in the world of business, and in all the future learning environments.

GENERAL LEARNING OUTCOMES

The School of Business aims to embed its students with:

> An understanding of the essential aspects of their respective fields of study.
> The abilities needed for success in an increasingly diversified global economy.
> The skills needed to utilize modern techniques and technologies, to solve real-world business problems.
> The capacity to think critically, and to approach new problems with an open, and analytical mind.
> The capability to communicate effectively in a global environment.
> An appreciation of the importance of participative decision-making, and sound business ethics, in all organizational relationships.

FACULTY

DEANS
Mikdashi, Tarek, Ph.D., Beirut
Shahin, Wassim, Ph.D., Byblos

ASSISTANT DEANS
Finlay, Jim, Ph.D., Beirut

CHAIRS
Abosedra, S., Ph.D., Beirut
Chalhoub, M., Ph.D., Beirut
Ladki, S., Ph.D., Beirut
Djoundourian, S., Ph.D., Byblos
Raad, E., Ph.D., Byblos

FACULTY
Abdallah, W., Ph.D.
Abi Fares, G., M.S.
Abou Hamza, M., Ph.D.
Abosedra, S., Ph.D.
Aintablian, S., Ph.D.
Andraos, A., M.A.
Armache, J., Ph.D.
Assad, T., M.S.
Beiruti, N., Ph.D.
Ben Sita, B., Ph.D.
Bogharian, K., M.S.
Bou Mosleh, A., Ph.D., C.F.A.
Chalhoub, M., Ph.D.
Dah, A., Ph.D.
Dibeh, G., Ph.D.
Djoundourian, S., Ph.D.
Finlay, J., D.B.A.
Ghattas, R., Ph.D.
Habib, M., Ph.D.
Harfouche, A., C.P.A.
Karkoulian, S., Ph.D.
Kassar, A., Ph.D.
Kouatli, I., Ph.D.
Ladki, S., Ph.D.
Majdalani, M., M.S.E.E., M.S.O.R., M.B.A.
McGill, J., Ph.D.
Messara, L., M.B.A
Mikdashi, T., Ph.D.
Naja, H., M.B.A.
Nasrallah, F., J.D.
Raad, E., Ph.D.
Shahin, W., Ph.D.
Sreih, J., Ph.D.
Touma, W., Ph.D.
Turk Ariss, R., Ph.D.
Yunis, M., M.S.
Zacca, J., M.B.A., C.P.A.
## Programs

### Bachelor of Science (B.S.) in Business Management

**Major Learning Outcomes**
Graduates in the Bachelor of Science in Business Studies will be able to do the following:

1. Work with their peers to solve relatively complex business problems, using the appropriate technologies and decision-making tools, within their respective areas of concentration, and communicate their decisions both written and orally.
2. Possess an understanding of their ethical, and social, responsibilities in the global marketplace.
3. Have an understanding of the global impact of economic conditions, and cultural dimensions, on their respective areas of concentration.

### Core Requirements (30 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC201</td>
<td>Principles of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>ACC202</td>
<td>Principles of Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>BUS203</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>ECO201</td>
<td>Microeconomics</td>
<td>3</td>
</tr>
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<td>ECO202</td>
<td>Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>FIN301</td>
<td>Managerial Finance</td>
<td>3</td>
</tr>
<tr>
<td>MGT201</td>
<td>Introduction to Management</td>
<td>3</td>
</tr>
<tr>
<td>MIS211</td>
<td>Management Information Systems I</td>
<td>3</td>
</tr>
<tr>
<td>MTK201</td>
<td>Introduction to Marketing</td>
<td>3</td>
</tr>
<tr>
<td>STA201</td>
<td>Business Statistics</td>
<td>3</td>
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</tbody>
</table>

### Accounting Requirements (30 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ACC201</td>
<td>Principles of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>ACC202</td>
<td>Principles of Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>BUS203</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>ECO201</td>
<td>Microeconomics</td>
<td>3</td>
</tr>
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<td>ECO202</td>
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<tr>
<td>MTK201</td>
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</tr>
<tr>
<td>STA201</td>
<td>Business Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

### Any two of the following Business Electives (6 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC304</td>
<td>Contemporary Issues in Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC210</td>
<td>Accounting Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>ACC415</td>
<td>Tax Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC421</td>
<td>International Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC430</td>
<td>Accounting Internship</td>
<td>3</td>
</tr>
<tr>
<td>ECO301</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>MGT301</td>
<td>Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BUS301</td>
<td>Intermediate Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MIS312</td>
<td>Management Information Systems II</td>
<td>3</td>
</tr>
</tbody>
</table>

### Banking & Finance

A total of 51 credits are needed in the major (30 credits for the core, and 21 credits for the emphasis) to graduate. This area of emphasis prepares students for the management of private, and public, institutions’ financial structures. It helps them develop skills in the field of financial analysis, as well as managerial skills in the money and commodities’ markets. It prepares qualified personnel, and potential executives, for Lebanon’s Banking Sector, and the Financial Service Industry.

**Required (15 Credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO321</td>
<td>Monetary Theory and Policy</td>
<td>3</td>
</tr>
<tr>
<td>FIN302</td>
<td>Financial Institutions and Markets</td>
<td>3</td>
</tr>
<tr>
<td>FIN311</td>
<td>Banking Operations</td>
<td>3</td>
</tr>
<tr>
<td>FIN411</td>
<td>Security Analysis and Portfolio Management</td>
<td>3</td>
</tr>
<tr>
<td>FIN499</td>
<td>Senior Study - Finance</td>
<td>3</td>
</tr>
</tbody>
</table>

### Economics

Students need 51 credits in the major (30 credits for the core, and 21 credits for the emphasis) to graduate. The Emphasis gives the students a good foundation in theoretical and applied economics. Students are prepared to work in both the private and the public sector jobs, immediately after graduation.

**Required (15 Credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO301</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECO321</td>
<td>Monetary Theory &amp; Policy</td>
<td>3</td>
</tr>
<tr>
<td>ECO422</td>
<td>Public Finance &amp; Fiscal Policy</td>
<td>3</td>
</tr>
<tr>
<td>ECO401</td>
<td>International Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECO499</td>
<td>Senior Study – Economics</td>
<td>3</td>
</tr>
</tbody>
</table>

### Any two of the following Business Electives (6 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS311</td>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>ECO422</td>
<td>Public Finance &amp; Fiscal Policy</td>
<td>3</td>
</tr>
<tr>
<td>ECO401</td>
<td>International Economics</td>
<td>3</td>
</tr>
<tr>
<td>FIN302</td>
<td>Financial Institutions and Markets</td>
<td>3</td>
</tr>
<tr>
<td>FIN401</td>
<td>Senior Seminar in Finance</td>
<td>3</td>
</tr>
<tr>
<td>FIN412</td>
<td>Credit Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FIN421</td>
<td>Financial Derivatives</td>
<td>3</td>
</tr>
<tr>
<td>BUS301</td>
<td>Intermediate Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>IBS312</td>
<td>Global Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>MIS312</td>
<td>Management Information Systems II</td>
<td>3</td>
</tr>
</tbody>
</table>

### Family & Entrepreneurial Business Management

This area of Emphasis caters to students who belong to families already in business, and who wish to preserve its continuity, maintaining the family’s wealth from generation to generation. The Emphasis is also intended for students who wish to start their own businesses, as it encourages entrepreneurship, and the building of solid guidelines for future business startups.

**Required (15 Credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGT401</td>
<td>Human Resource Development</td>
<td>3</td>
</tr>
<tr>
<td>BUS301</td>
<td>Intermediate Business Statistics</td>
<td>3</td>
</tr>
<tr>
<td>BUS311</td>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>FIN302</td>
<td>Financial Institutions &amp; Markets</td>
<td>3</td>
</tr>
<tr>
<td>ECO311</td>
<td>Economic Development</td>
<td>3</td>
</tr>
<tr>
<td>ECO312</td>
<td>Any course in Economics</td>
<td>3</td>
</tr>
<tr>
<td>MIS312</td>
<td>Management Information Systems II</td>
<td>3</td>
</tr>
</tbody>
</table>
The courses in this Emphasis are designed in such a way that they address the complex workings and challenges of family-owned, and family-run, businesses. Students will not only get working knowledge of the tools and concepts involved, but they will also develop action plans for their family businesses, manage growth opportunities, and acquire, frameworks, analytical skills, techniques, and decision making tools, that can be used in the growing entrepreneurial businesses. Course work in this area will begin as soon as it is feasible.

**INTERNATIONAL BUSINESS**

The Emphasis in International Business at LAU provides a global perspective on management, finance, marketing, international affairs, and economics, while providing students with a firm foundation in the fundamentals of the business curriculum. The field aims at preparing students for work in the global marketplace as business professionals who can understand, and exploit, the dynamics of global business and finance.

**Required (15 Credits)**

- IBS311 Managing the Multinational Corporation 3
- IBS321 Global Financial Management 3
- MKT311 International Marketing 3
- ECO401 International Economics 3
- FIN302 Financial Institutions & Markets 3
- IBS499 Senior Study/Internship 3

**Any two of the following Business Electives (6 credits)**

- ACC302 Cost Accounting 3
- MGT301 Organizational Behavior 3
- MGT441 Human Resources Development 3
- MKT421 Marketing Research 3
- BUS301 Intermediate Business Statistics 3
- IBS488 Topics in International Business 3
- FEB488 Topics in Family & Entrepreneurial Business 3

**HOSPITALITY MANAGEMENT**

**Required (15 Credits)**

- HOM201 Introduction to RHI 3
- HOM204 Restaurant Management 3
- HOM302 Hospitality Purchasing 3
- HOM304 Hotel Operations 3
- HOM306 Quantity Food Production/Catering 3
- HOM308 Cost Control in RHI 3
- HOM311 Organization & Administration in RHI 3
- HOM499 Senior Study - Internship in RHI 3

**MANAGEMENT**

Students need 51 credits in the Major (30 credits for the Core, and 21 credits for the Emphasis) to graduate. This area of Emphasis offers a curriculum focused on practical and applied courses, enabling students to enter the workforce directly. It emphasizes breadth, skills, problem-solving techniques, and basic knowledge. It helps students choose from a variety of career opportunities, and prepares them for Graduate studies in Business, and related fields.

**Required (15 Credits)**

- MGT301 Organizational Behavior 3
- MGT420 Strategic Planning & Policy Formulation 3
- MGT441 Human Resources Development 3
- MGT499 Management Senior Study 3

**Any two of the following Business Electives (6 credits)**

- ACC302 Cost Accounting 3
- MIS350 Technology Management 3
- MIS410 Enterprise Wide Business Performance Model 3
- MIS488 Special Topics in E-Business 3
- IBS488 Topics in International Business 3
- FEB488 Topics in Family & Entrepreneurial Business 3

**MARKETING**

Students need 51 credits in the Major (30 credits for the Core and 21 credits for the Emphasis) to graduate. This area of Emphasis acquaints students with a full range of skills and knowledge in business management, with a focus on marketing. It instills in students an awareness of the problems of visual design in the world of business and industry. It makes them understand the activities involved in transferring goods and services from producers, to consumers, and prepares them for Graduate studies, as well as careers in sales, advertising, public relations, product management, wholesaling, retailing, and market research.

**Required (15 Credits)**

- MKT301 Promotion Management & Market Communication 3
- MKT304 Consumer Behavior 3
- MKT311 International Marketing 3
- MKT421 Marketing Research 3
- MKT499 Senior Study – Marketing 3

**Any two of the following courses (6 credits)**

- CSC332 Web Design & Development 3
- CSC392 Information Systems Analysis & Design 3
- CSC298 Special Topics 3
- MIS350 Technology Management 3
- MIS410 Enterprise Wide Business Performance Model 3
- MIS488 Special Topics in E-Business 3
- IBS488 Topics in International Business 3
- FEB488 Topics in Family & Entrepreneurial Business 3
PROGRAMS

Any two of the following Business Electives (6 credits)
- ACC302 Cost Accounting 3
- BUS311 Research Methods 3
- HOM302 Hospitality Purchasing 3
- MGT301 Organizational Behavior 3
- MKT488 Topics in Marketing 3
- BUS301 Intermediate Business Statistics 3
- IBS311 Managing the Multinational Corporation 3
- MIS212 Management Information Systems II 3
- IBS488 Topics in International Business 3
- FEB488 Topics in Family and Entrepreneurial Business 3

BACHELOR OF SCIENCE (B.S.) IN ECONOMICS

The Bachelor of Science in Economics aims to give students a good foundation in theoretical and applied economics. Students are prepared to work, immediately after graduation, in business, in government and finance, or to pursue graduate studies in: economics, business, law, public administration, international relations, and related fields. The Program consists of up to 40 credit hours in Economics courses, plus 15, or 18, credit hours in a chosen track.

The Mathematics track prepares students for careers in management positions, and human resource development, and prepares them for graduate work in: personnel and organizational economics, management information technologies, and MBA.

Major Learning Outcomes

Graduates in the Bachelor of Science in Economics will be able to do the following:
1. To apply theoretical, and quantitative, reasoning to address economic and social issues.
2. To solve economic problems, and assess the merits of economic policies, using the appropriate methodology, and communicate their decisions effectively.
3. To possess an understanding of their ethical, and social, responsibilities in a multi-cultural marketplace.
4. To have an understanding of the impact of economic policies on the global business operations.

Plan of Study

I. Economics – All tracks (37 – 40 credits)
- ECO201 Microeconomics 3
- ECO202 Macroeconomics 3
- ECO305 Intermediate Microeconomics 3
- ECO306 Intermediate Macroeconomics 3
- ECO311 Economic Development 3
- ECO321 Monetary Theory and Policy 3
- ECO330 Introductory Econometrics 3
- ECO331 Econometrics Lab 1
- ECO401 International Economics 3
- ECO402 Advanced Topics in Economics 3
- ECO410 Mathematical Methods for Economics 3
- ECO422 Public Finance and Fiscal Policy 3
- ECO499 Senior Study – Economics 3
- STA201 Business Statistics 3

*Not a requirement for Track III (Mathematics)

II. Entrepreneurial Business

- FEB488 Topics in Family and Entrepreneurial Business 3

III. Finance

- ACC201 Accounting I 3
- ACC202 Accounting II 3
- FIN301 Managerial Finance 3
- FIN302 Financial Institutions and Markets 3
- FIN311 Banking Operations 3
- FIN411 Security Analysis & Portfolio Management 3

Track I, Finance, (18 credits)
- ACC201 Accounting I 3
- ACC202 Accounting II 3
- FIN301 Managerial Finance 3
- FIN302 Financial Institutions and Markets 3
- FIN311 Banking Operations 3
- FIN411 Security Analysis & Portfolio Management 3

Track II, Management, (18 credits)
- ACC201 Accounting I 3
- ACC202 Accounting II 3
- MGT301 Introduction to Management 3
- MGT301 Organizational Behavior 3
- MGT420 Strategic Planning and Policy Formulation 3
- MGT441 Human Resource Development 3
- MIS211 Management Information Systems I 3
- MIS 212 Management Information Systems II 3

Track III, Mathematics, (15 credits)
- MTH201 Calculus III 3
- MTH301 Linear Algebra 3
- MTH304 Differential Equations 3

And any two of the following courses:
- MTH206 Calculus IV 3
- MTH207 Discrete Structures 3
- MTH303 Numerical Methods 3
- MTH306 Non-Linear Dynamics & Chaos 3
- MTH309 Graph Theory 3
- MTH498 Topics in Mathematics 3

Track IV, Political Science/International Affairs, (15 credits)
- POL201 Introduction to Political Science 3
- POL312 Politics of Developing Areas 3

Plus any three upper-level courses in Political Science/International Affairs.

BACHELOR OF SCIENCE (B.S.) IN HOSPITALITY & TOURISM MANAGEMENT

The Bachelor of Science in Hospitality and Tourism Management prepares students for positions in: sales, personnel administration, public relations, auditing, front office management, house-keeping, food and beverage management, meetings, and conventions planning, and general management positions. Graduates may serve as managers, or directors of hotels and restaurants, in the catering or food processing industries, and in travel and tourism related industries.

The Program consists of 24 credit hours in Hospitality Management courses, plus nine credit hours of Tourism Management, in addition to the 30 credits of the Business Core requirements.

Students are also required to complete 320 hours of applied hands-on training activities to develop their technical skills, and to apply classroom learning in real-world settings.

Major Learning Outcomes

Graduates in the Bachelor of Science in Hospitality and Tourism Management will be able to do the following:
1. To work with their peers to solve relatively complex business problems normally arising in Hospitality Management, using appropriate technologies, and decision-making tools, and to communicate their decisions both written, and orally.
2. To possess an understanding of their ethical, and social, responsibilities in the global marketplace.
3. To have an understanding of the global impact of economic conditions, and cultural dimensions, on travel, tourism, and hospitality management.
PROGRAMS

Hospitality Management Requirements
(24 credits)
HOM201 Introduction to RHI 3
HOM204 Restaurant Management 3
HOM302 Hospitality Purchasing 3
HOM304 Hotel Operations 3
HOM306 Quantity Food Production/Catering 3
HOM308 Cost Control in RHI 3
HOM311 Organization and Administration 3 in RHI
HOM499 Senior Study – Internship in RHI 3

Tourism Management Requirements
(9 credits)
HOM211 Introduction to Travel and Tourism 3
HOM321 Tourism Economic and Cultural Impact 3
HOM324 Convention and Service Management 3
HOM488 Seminar in Hospitality and Tourism 3

MASTER OF BUSINESS ADMINISTRATION DEGREE

Since 1981, LAU has prepared men and women for key roles in managerial and professional positions in business, and public organizations.

In offering a Master of Business Administration (MBA), LAU draws on a substantial, and growing, experience in undergraduate business education, to provide a significant opportunity for advanced education to seekers of a business career.

The University also recognizes that persons with Undergraduate Degrees in fields other than Business (e.g. engineering, agriculture, liberal arts, etc.,) may pursue a business education, thus the curriculum has been adapted to meet their needs. Moreover, and in order to make the Program accessible to those already active in management, provision has been made for part-time students, at conveniently scheduled times. Students must complete a total of 39 credits (18 credits for the Core, and 21 credits for the Elective and Research requirements).

Major Learning Outcomes
Graduates in the Master in Business Administration will be able to do the following:
1. To utilize modern techniques, and technologies, to effectively deal with the complex managerial issues facing upper-level managers in today’s global business environment.
2. To work, as a team, to solve complex business problems, and to show evidence of highly professional, oral, and written, communications skills when presenting their solutions.
3. To possess a thorough understanding of the ethical, and social, responsibilities of business executives in the global marketplace.

Core Requirements (18 Credits)
All candidates for the Master of Business Administration Degree must satisfy the following requirements.
BUS811 Business Economics 3
BUS831 Management Theory 3
BUS841 Marketing Management 3
BUS851 Quantitative Methods in Business 3
BUS852 Research Methods in Business 3
BUS861 Financial Management 3

Students can choose to pursue one of the following remaining options for graduation:
> Take seven courses from the following list, OR
> Take six courses from the following list, and BUS898 Project in Business, OR
> Take five courses from the following list, and BUS899 Thesis in Business.

BUS821 Financial Accounting 3
BUS822 Management Accounting 3
BUS832 Management Systems 3
BUS833 Personnel Management & Human Resources Development 3
BUS834 Project Planning and Management 3
BUS835 Commercial Bank Management 3
BUS836 Modern Portfolio Management 3
BUS837 International Business 3
BUS839 Organizational Behavior 3
BUS842 International and Global Marketing 3
BUS863 Financial Derivatives 3
BUS871 Seminar in Business 3
BUS872 Business Policy and Planning 3
BUS874 Trends Management 3
BUS875 Business Strategy and Innovation Management 3
BUS876 Leadership 3
BUS898 Project in Business 3
BUS899 Thesis in Business 6
*This course may be taken more than once for credit, however, with different topics.

EXECUTIVE MASTER OF BUSINESS ADMINISTRATION DEGREE PROGRAM

PROGRAM OBJECTIVES AND PHILOSOPHY
Executive training at the Lebanese American University is built on the philosophy that learning is a continuous process throughout individuals’ careers. The purpose of the Executive Master of Business Administration (EMBA) is to allow experienced professionals in Lebanon, and the Middle East, to combine a full-time career with an executive educational program, culminating in an academic degree. A wide range of course offerings allows students to develop expertise in several areas of business, namely: Accounting, Banking and Finance, Economics and Statistics, Management, and Marketing. Such diversity aims at providing students, from various business and academic backgrounds, with the ability to comprehend the latest techniques, and applications, in all the aspects of business, and corporate settings, by applying various course materials to on-the-job managerial situations.

PROGRAM & COURSE DESIGN
The Program is conducted on Saturdays, from mid-October to mid-September. An average of 21 courses are offered annually. A student who attends all the courses offered during the year needs less than two years to graduate. Each course carries a one-credit semester hour, equivalent to 15 hours of classroom contact. Courses have no prerequisites. Students can enroll in one course every two Saturdays, according to the following schedule:
> Each course is offered in two seven-and-a-half-hour sessions, beginning at 9:00 a.m., and ending at 5:30 p.m., with a one hour lunch break.
> During the first session, on the first Saturday, students receive the course material, and attend an intensive seven-and-a-half hours of classes, ending with a take-home project.
> The second session resumes on the following Saturday. During this session, students sit for an in-class exam, and attend seven-and-a-half additional hours of instruction. The course ends with a take-home project, submitted through electronic mail, or in person, within two or three weeks.
> Up to 12 courses, of one credit each, offered by the Institute in the School of Business, can be granted credit towards the EMBA Program, subject to meeting the standards set by the Program’s Administration.

EMBA PROGRAM & LEARNING OUTCOMES
The EMBA Program will enable the Graduates to do the following:
1. To apply, effectively, accounting, financial, economic, management, and marketing principles, and theories, in business organizations, to solve business problems.
2. To work, effectively, in groups, and teams, seeking to achieve common goals and objectives, and become effective leaders, and managers, in their institutions.
3. To show effective listening skills, in addition to oral and written communication skills.
4. To apply new technology to obtain, and retrieve, data, to analyze information, and to present results in an efficient way.
5. To understand and recognize the integrity, and ethical responsibility, of business executives, in any business and social environment.
COURSE DESCRIPTIONS

ACCOUNTING

ACC201 Principles of Accounting I [3-0, 3 cr.]
This course is an introduction to the accounting principles and practices. The course covers the measuring, recording, summarizing, reporting, and interpreting, of financial transactions that affect the income statements and balance sheets of service and merchandising organizations. Topics include the accounting cycle, accounting for merchandising transactions, accounting systems, and classified financial statements.

ACC202 Principles of Accounting II [3-0, 3 cr.]
This course is a continuation of ACC201 Principles of Accounting I, with emphasis on basic accounting, and managerial issues related to partnerships and corporations. Topics include the organization, operation, and liquidation of partnerships, as well as the organization, operation, and financing of corporations, and short-term, and long-term, investments in corporate securities, the statement of cash flow, and financial statement analysis. Prerequisite: ACC201 Principles of Accounting I.

ACC301 Intermediate Accounting [3-0, 3 cr.]
This course covers the accounting theory and problems, emphasizing financial reporting issues, and financial statement interrelationships. It entails an intensive study of the Generally Accepted Accounting Principles, and their application. Topics include the historical development, and theoretical structure, of financial accounting, revenue recognition, and income determination, corporate reporting requirements, accounting changes, and error analysis. Prerequisite: ACC202 Principles of Accounting II.

ACC302 Cost Accounting [3-0, 3 cr.]
This course is an intensive study of the concepts and methods used in cost accumulation for financial reporting, planning and control, and managerial decision making. Topics include cost allocation, job process and direct costing, and standard cost systems. Prerequisite: ACC202 Principles of Accounting II.

ACC304 Contemporary Issues in Accounting [3-0, 3 cr.]
This course is an intensive study of the accounting and reporting issues related to elements of assets, liabilities, and equities. Topics include accounting for contingencies, troubled debt restructuring, pensions and post-retirement benefits, and operating and capital leases. Prerequisite: ACC201 Intermediate Accounting.

ACC310 Accounting Information Systems [3-0, 3 cr.]
This course deals with how computer-based accounting information systems perform the managerial, and financial, accounting functions. System development and controls are also covered. Topics include hardware and software considerations, system flowcharting, system controls, and systems for: general ledger, working capital, and fixed assets. Prerequisite: ACC202 Principles of Accounting II.
COURSE DESCRIPTIONS

ACC401 Advanced Accounting [3-0, 3 cr.]
This course emphasizes the application of advanced accounting concepts to specialized business entities, such as partnerships, branches, affiliated companies, government entities, and the analysis and solution of problems that arise in the application of these concepts. Topics include accounting for partnerships and branches, consolidated financial statements, segment reporting, reorganization, and liquidation.
Prerequisite: ACC202 Principles of Accounting II.

ACC411 Auditing [3-0, 3 cr.]
This course covers the environment of auditing, and the concepts and methods used, by independent auditors, in gathering audit evidence, and in formulating audit opinions. Topics include auditors’ professional responsibilities, audit planning, the study and evaluation of internal control, and auditing of transaction and balances.
Prerequisite: ACC202 Principles of Accounting II.

ACC415 Tax Accounting [3-0, 3 cr.]
This course considers the principles of taxation, and makes a comparative study between the United States and the Lebanese tax laws.
Prerequisite: ACC202 Principles of Accounting II.

ACC421 International Accounting [3-0, 3 cr.]
This course provides an introduction to international accounting, and its role in international business. Topics include the development of international accounting, accounting systems in a global environment, international financial reporting issues, accounting for foreign currency transactions and derivatives, international financial analysis, international management accounting, and international taxation.
Prerequisite: ACC202 Principles of Accounting II.

ACC430 Accounting Internship [3-0, 3 cr.]
This course allows students to earn up to three credits by working, during their last Summer vacation, for a period of sixteen weeks, at an instructor-approved accounting position, at a business not owned by a relative of the student. Students are required to write a weekly report about their daily activities. The weekly report forms the basis of their supervision and evaluation by the instructor.
Prerequisite: Senior Standing, and with the consent of the Instructor.

ACC499 Senior Study - Accounting [3-0, 3 cr.]
This course involves case studies, a field project, and special topics selected by the instructor.
Prerequisite: Senior Standing.

BANKING AND FINANCE

FIN301 Managerial Finance [3-0, 3 cr.]
This course is concerned with the firm’s financing and investment decisions. Students learn how financial managers raise funds for their corporations, and how they allocate these funds among the assets of the firm. Topics include time value of money, valuation of bonds and stocks, capital budgeting, financial statement analysis, working capital management, and long term financing.
Prerequisite: ACC202 Principles of Accounting II.

FIN302 Financial Institutions and Markets [3-0, 3 cr.]
This course is concerned with the financial systems. The emphasis is on understanding the operations of financial institutions, markets, and instruments. Topics include commercial banking, expansion process of money, central banking, and other financial institutions, as well as the types of financial markets and instruments, and interest rates.
Prerequisite: ACC202 Principles of Accounting II.

FIN311 Banking Operations [3-0, 3 cr.]
This course is concerned with the management of commercial banks’ operations. It provides students with a description, and an analysis of those operations. It also investigates the techniques and tools those commercial bank managers apply to perform their job. Topics include the structure and internal organization of banks, lending policies, asset, and liability management.
Prerequisite: FIN301 Managerial Finance, and FIN302 Financial Institutions and Markets.

FIN321 Introduction to Insurance [3-0, 3 cr.]
This course examines the theory of risk management and insurance, the institutional aspects of the insurance industry, and decision making tools applicable to the insurance industry.
Prerequisite: ACC202 Principles of Accounting II.

FIN401 Senior Seminar in Finance [3-0, 3 cr.]
This course covers special issues in the field of banking and finance not covered in other courses. Specific topics covered are at the discretion of the instructor.
Prerequisite: FIN301 Managerial Finance, FIN302 Financial Institutions and Markets, and Senior Standing.

FIN411 Security Analysis and Portfolio Management [3-0, 3 cr.]
This course is concerned with the evaluation of financial securities, and the formation of efficient portfolios. Models will be developed to determine the value of financial instruments, such as stocks and bonds. Portfolio management deals, with the combination of securities to maximize returns and minimize risk, will be discussed. Topics include risk and return, diversification, efficient portfolios, efficient markets, interest rate risk, and duration.
Prerequisites: FIN301 Managerial Finance, and FIN302 Financial Institutions and Markets.
COURSE DESCRIPTIONS

FIN412 Credit Analysis [3-0, 3 cr.]
This course provides students with the knowledge and analytic techniques of the principles of credit risk identification, financial analysis of a firm, and credit decision process, with special attention to the banking experience, and cases on the credit application package.
Prerequisites: FIN301 Managerial Finance, FIN302 Financial Institutions and Markets, and FIN311 Banking Operations.

FIN421 Financial Derivatives [3-0, 3 cr.]
This course is concerned with derivative securities and markets. Topics include options, option markets, option strategies, option pricing models, futures, futures markets, futures' strategies, futures pricing models, and swaps and financial risk management using derivatives.
Prerequisite: FIN411 Security Analysis and Portfolio Management.

FIN499 Senior Study - Finance [3-0, 3 cr.]
This course is concerned with the integration of financial concepts and techniques the students have learned, and the application of these concepts and techniques to real world situations.
Prerequisites: Senior Standing, FIN301 Managerial Finance, FIN302 Financial Institutions and Markets, FIN411 Security Analysis and Portfolio Management, or the consent of the Instructor.

BUSINESS (GENERAL)
BUS201 Introduction to Business [3-0, 3 cr.]
This course is an introductory survey of the business environment. Topics include basic business functions and their interrelationships, accounting, finance, management, marketing, and economics.
The course is open to Freshmen and Sophomore students only.

BUS202 Business Communication [3-0, 3 cr.]
This course entails the development of writing skills applied to various forms of business communication.
Prerequisites: ENG101 English II, ENG102 English III.

BUS203 Business Law [3-0, 3 cr.]
This course is an introduction to the legal concepts. It entails the survey of the Lebanese legal system, notably: contract laws, commercial papers, personal and real property, agencies, partnerships and corporations, bankruptcies, and labor.

BUS205 Survey of Economics and Marketing [3-0, 3 cr.]
This course is an introduction to the basic principles of Microeconomics and Marketing. The course addresses the theory of consumer behavior, cost and price determination, the elements of the marketing mix, the product, the pricing, the promotion, and the distribution decisions.
This course is not open to students majoring in Business, or to those who have taken either ECO201 Microeconomics or MKT201 Introduction to Marketing.

BUS301 Intermediate Business Statistics [3-0, 3 cr.]
This course addresses more advanced topics in statistics for business students.
Prerequisite: STA201 Business Statistics.

BUS311 Research Methods [3-0, 3 cr.]
This course acquaints students with the importance of research in business. Topics include a research proposal design, data collection, and descriptive, and statistical, analysis.
Prerequisite: BUS301 Intermediate Business Statistics.

BUSINESS (GRADUATE)
BUS811 Business Economics [3-0, 3 cr.]
This course is an overview of microeconomics, from a managerial decision-making standpoint, emphasizing and applying the basic concepts to selected problems. Topics include the firm’s behavioral and managerial theories, determination of national income, demand estimation, cost determination, forecasting, and government regulation.

BUS821 Financial Accounting [3-0, 3 cr.]
This course is an introduction to financial accounting concepts, from a managerial viewpoint, emphasizing the use of financial information in decision making. Topics include recording economic events, basic accounting concepts, essential accounting standards, interrelationship of financial statement elements, and the analysis, interpretation, and use of internal and external data.

BUS822 Management Accounting [3-0, 3 cr.]
This course entails a study of the cost accounting applications and related techniques to decision-making, emphasizing control, and the use of internally-generated accounting data. Topics include cost allocation, variance analysis, budgeting and cost control system, responsibility reporting, and capital budgeting.

BUS831 Management Theory [3-0, 3 cr.]
This course is an introduction to management, organizational behavior, and development theories and practices, emphasizing applications in managerial situations. Topics include goal-setting, manpower planning and control, motivational techniques, and problem-solving processes.
BUS832 Management Systems [3-0, 3 cr.]
This course introduces students to recent practices in corporate information management. The course combines lectures and case studies, and encourages participants to critically analyze the effects of information technology on organizations. Topics include e-mail networking, telecommunication practices, EDI, executive information systems, and the concept of information resource management.

BUS833 Personnel Management and Human Resources Development [3-0, 3 cr.]
This course entails a critical look at organizations’ principles, methods, and resources management. Topics include strategic human resource management for effective employee training and education within a development plan, corporate training roles, management issues on: employment, recruiting, testing, selection and placement, job evaluation, wage, and salary administration, labor relations and communication, performance evaluation, benefits and services, discipline, motivation and morale, and accident prevention and safety.

BUS834 Project Planning and Management [3-0, 3 cr.]
This course entails an examination of the techniques used to select, supervise, and evaluate, projects, emphasizing the application of project performance control of methods. Topics include needs analysis, alternative courses of action, optimum alternatives, project organization, operation and control, and project completion and evaluation.

BUS835 Commercial Bank Management [3-0, 3 cr.]
This course covers commercial bank management policies and decisions. Analysis includes advanced treatment of asset-liability management, emphasizing risk management issues such as: interest rates, liquidity, credit, capital, and off-balance sheet risk, and activities. The analysis presents financial engineering techniques in risk management, and evaluates bank performance.

BUS836 Modern Portfolio Management [3-0, 3 cr.]
This course applies concepts of efficient capital markets, modern portfolio theory, and asset pricing models, to practical problems of security analysis, portfolio construction, optimization, and performance measurement. The analysis considers return and risk characteristics of various financial investment instruments, and derivatives, including common stocks, bonds, futures, options, and forward contracts.

BUS837 International Business [3-0, 3 cr.]
This course is a field survey covering the cultural, economic, political, and social, environments of international business. The course emphasizes global finance and exchange rate determination, exports, imports, and country risk analysis.

BUS838 Organizational Behavior [3-0, 3 cr.]
This course explores human behavior at the individual, group, and organizational, level. Issues of leadership and management, conflict resolution, communications, decision-making power and political behavior, and stress and organizational change, will be introduced.

BUS839 Organizational Behavior [3-0, 3 cr.]
This course explores human behavior at the individual, group, and organizational, level. Issues of leadership and management, conflict resolution, communications, decision-making power and political behavior, and stress and organizational change, will be introduced.

BUS841 Marketing Management [3-0, 3 cr.]
This course shows students how to manage the marketing process for organizations, to optimize the resource use, and to maximize the benefits. It focuses on decision-making. Lectures, case studies, discussions, and projects, engage students in learning how best to manage scarce resources.

BUS842 International and Global Marketing [3-0, 3 cr.]
This course is designed to provide an appreciation of the critical role that marketing plays in the global economy, and the various elements essential to global success. Attention is given to the exogenous global environment, and is coupled with an investigation of the significant factors that a firm must consider as it positions itself to enter the international market place.

BUS851 Quantitative Methods in Business [3-0, 3 cr.]
This course is an introduction to the application of mathematical techniques in business decision-making, emphasizing practical usage in management situations. Topics include linear programming, transportation problems, network planning, queuing theory, regression analysis, and modeling techniques.

BUS852 Research Methods in Business [3-0, 3 cr.]
This course is an examination of research methods applicable to identification, definition, and problem resolution, in a business environment, emphasizing data collection and analysis techniques. Topics include problem identification and definition, hypothesis formulation, data collection methodology, statistical validation, and research report writing.

BUS861 Financial Management [3-0, 3 cr.]
This course is a review of the concepts underlying the financing of a business, emphasizing the uses of capitalization and leverage for current operations, and for future expansion. Topics include valuation theory, investment theory, financial planning and control, dividend policy and growth, alternative capitalization structures, appraisal of capital projects, and mergers and acquisitions.

BUS863 Financial Derivatives [3-0, 3 cr.]
This course deals with derivative securities. It focuses on the analysis of options, futures, option and futures’ markets, and option and futures’ strategies. In addition, it discusses option and futures’ pricing models, and how derivatives are used in financial risk management.

BUS871 Seminar in Business [3-0, 3 cr.]
This course is an examination of the current, or developing, issues in management practices, emphasizing immediacy impact, and the availability of top level technique resources. Topics may vary, and are announced shortly before registration for semesters in which the seminar is offered. The seminar may be taken for credit more than once.
COURSE DESCRIPTIONS

BUS872 Business Policy and Planning [3-0, 3 cr.]
This course is an application of policy formulation, and implementation concepts, emphasizing the practical use of managerial skills, and theoretical frameworks. Topics include problem identification and definition, organizational goal setting, establishment, and performance review and evaluation.

BUS874 Trends Management [3-0, 3 cr.]
This course acquaints students with the concept of environmental scanning, along with the major trends occurring in business. Trends management techniques that measure qualitative, and quantitative, forces affecting the general, and specific, environments will be introduced.

BUS875 Business Strategy & Innovation Management [3-0, 3 cr.]
This course builds a foundation in business strategy and frameworks in planning and execution. It emphasizes innovation as a source of sustainable competitive advantage, and equips the graduate student with the theory and application of strategy, industry analysis, and operational maneuvers, to meet strategic objectives. Students go through case analysis, with real-life situations drawn from different parts of the world.

BUS876 Leadership [3-0, 3 cr.]
This course explores the theory and application of leadership, its various models, and how leadership plays a major role in personal, and professional, development. The course emphasizes the relationship between leadership, and organizational performance, in a competitive environment. Students go through case analysis and illustrations of leadership skills, styles, and traits.

BUS878 Research Topic in Business [3-0, 3 cr.]

BUS879 Thesis in Business [6-0, 6 cr.]
This course entails the application of research methods to a current topic relevant to business, and business education in the Middle East. The thesis must incorporate the student’s hypothesis, test methods, test results, and conclusions, in a report available to later researchers. In some cases, the faculty may authorize expanded research procedures resulting in high-quality theses.

COURSE DESCRIPTIONS

▶ ECONOMICS
ECO201 Microeconomics [3-0, 3 cr.]
This course is an introductory course dealing with the nature and scope of economics, consumer behavior, theory of the firm, price determination, and allocation of resources.

ECO202 Macroeconomics [3-0, 3 cr.]
This course is an introductory course dealing with the principles of national income accounting, national income determination, macroeconomics’ objectives and policy instruments, and the relative effectiveness of fiscal, and monetary, policies in stabilizing the economy.

ECO301 Managerial Economics [3-0, 3 cr.]
This course applies economic concepts to managerial problems. Topics include decision making under conditions of risk and uncertainty, demand analysis and estimation, cost analysis, market structures and their impact on pricing practices.
Prerequisites: ECO201 Microeconomics, ECO202 Macroeconomics.

ECO305 Intermediate Microeconomics [3-0, 3cr.]
This course covers, in depth, the theory and applications of consumer and producer behavior. It covers topics such as price/wage determination, under various market structures, estimation of demand for a given product, analysis of a firm’s pricing strategies, levels of price discrimination, comparing the welfare effects of different policies, and externalities and public goods.
Prerequisites: ECO201 Microeconomics, ECO202 Macroeconomics.

ECO306 Intermediate Macroeconomics [3-0, 3 cr.]
This course uses the latest theoretical techniques, and models, in macroeconomics to address the measurement, and determination, of income, prices, employment, interest rates, and aggregate demand and supply. The course also stresses stabilization, fiscal, and monetary, policies under various schools of macroeconomic thinking, and the sources of instability in the private economy.
Prerequisite: ECO201 Microeconomics, ECO202 Macroeconomics.

ECO311 Economic Development [3-0, 3 cr.]
This course covers the theories of economic development, plans, policies, programs and projects, and the building of institutional mechanisms to achieve development.
Prerequisites: ECO201 Microeconomics, ECO202 Macroeconomics.

ECO321 Monetary Theory and Policy [3-0, 3 cr.]
This course covers money and the banking system’s nature, and functions. The course covers the interaction between the monetary and real sectors, money supply and demand analysis, and the theory and transmission mechanisms of monetary policy, monetary policy, and central banking.
Prerequisites: ECO201 Microeconomics, ECO202 Macroeconomics.
COURSE DESCRIPTIONS

ECO330 Introductory Econometrics [3-0, 3 cr.]
This course introduces students to the theory and practice of econometric analysis. The course will include simple regression models, multiple regression models, regression with discrete random variables, and topics in time series analysis.
Prerequisite: STA201 Business Statistics.

ECO331 Econometrics Lab [0-1, 1 cr.]
This is a required lab course that complements the Econometrics course, and is designed to teach students data exploration and investigation skills, using a statistical computer software package.
Co-requisite: ECO330 Introductory Econometrics.

ECO401 International Economics [3-0, 3 cr.]
This course deals with the principles of trade, and resource allocation among nations, and monetary, foreign exchange, and trade restriction, problems and programs.
Prerequisites: ECO201 Microeconomics, ECO202 Macroeconomics.

ECO402 Advanced Topics in Economics [3-0, 3 cr.]
This course deals with selected topics in economic theory.
Prerequisite: At least 12 credits in economics courses. This course may be repeated for credit, with the consent of the Instructor.

ECO410 Mathematical Methods for Economics [3-0, 3 cr.]
This course covers advanced mathematical methods, and tools used in modern economics. The course includes a brief calculus review, matrix theory, constrained optimization, and elements of game theory, and dynamical systems.
Prerequisite: MTH105 Business Math or equivalent.

ECO422 Public Finance and Fiscal Policy [3-0, 3 cr.]
This course discusses the needed government intervention in case of market failure. Topics covered include taxation and public debt, as revenue sources and public policy instruments, government expenditure patterns, and tax structures, and public expenditures to assure government services, and as fiscal policy instruments.
Prerequisites: ECO201 Microeconomics, ECO202 Macroeconomics.

ECO499 Senior Study [3-0, 3 cr.]
This course entails case studies, research readings, and field projects. It looks at recent research topics from a practical standpoint.
Prerequisite: Senior Standing.

FAMILY & ENTREPRENEURIAL BUSINESS

FEB301 Entrepreneurship and Small Business Management [3-0, 3 cr.]
This course is designed to address the complex workings of small businesses that are family owned and run. It will give students a working knowledge of the tools, and concepts, involved in preparing a business plan. Topical coverage includes foundations of entrepreneurship, forms of ownership and franchising, methods for determining the value of a business, marketing, and financial considerations in building a business plan, managing inventory in small businesses, quality control and just in time techniques, managing human resources in the family businesses, techniques for enhancing profitability, and global aspects of entrepreneurship.
Prerequisite: MGT201 Introduction to Management.

FEB304 Family Business Management [3-0, 3 cr.]
This course is designed to address the challenges unique to businesses that are family owned and run. It will help students develop action plans for their family businesses. Topical coverage includes concepts of corporate governance vs. classical governance, structures of a family business, key elements of a governance structure, family businesses vs. board of directors, securing succession as a key governance measure, handling the control task as a key governance measure, ownership and developmental dimensions, founders and entrepreneurial experience, and the structures and plans guiding developments. Other topics include families as sources of capital, leadership in family businesses, separating family life and work life, how to work with family relations, children in the family business, working with siblings, working with the expected family, divorce/merger, and other complexities, affecting the business, dynamics of succession, managing the transition, sibling rivalry, and multi-generational issues.
Prerequisite: MGT201 Introduction to Management.

FEB311 Small Business Start-Up Laboratory [3-0, 3 cr.]
The objective of this course is to encourage students to start new businesses, and to address functional ways of start-ups. It will include topics such as the types of new businesses, new markets and the Web, how to start marketing on the Web, creating and designing your Web-page, electronic commerce and the future, how to find new products, how to sell online, evaluation of potential startups, site selection and layout, competitive advantage and marketing research, pricing and credit policies, and preparing small businesses to go global. The course will include a laboratory and, the students will end up with a feasibility study or a business plan.
Prerequisite: Senior Standing, MGT201 Introduction to Management, MKT201 Introduction to Marketing.
FEB321 Venture Growth Strategies for Entrepreneurs [3-0, 3 cr.]
This course is designed to help entrepreneurs manage growth opportunities. It will provide students with a series of frameworks, analytical skills, techniques, and decision-making tools, which can be used in growing entrepreneurial businesses. The course attempts to combine various innovative pedagogical techniques in developing students’ understanding of growth management in a dynamic environment. Teams of students will be asked to manage companies in their growing phases, making appropriate decisions regarding all the functional aspects of the business through computer simulation. Exercises and presentations are built around the simulation. The course will also include financing options, going public, and tapping capital markets.
Prerequisites: MGT201 Introduction to Management, FIN201 Managerial Finance.

FEB488 Topics in Family and Entrepreneurial Business [3-0, 3 cr.]
This course covers a wide range of topics, focusing on the latest development in entrepreneurship, setting-up, and managing small and medium enterprises. The course could be taken more than once for credit when topics differ.
Prerequisites: refer to FEB requirements, and the specific topics offered.

HOSPITALITY MANAGEMENT
HOM201 Introduction to Restaurant, Hotel, and Institutional (RHi) Administration [3-0, 3 cr.]
This course introduces students to the history and operation of restaurants, hotels, and institutions. The course also examines the various characteristics of hospitality establishments.

HOM204 Restaurant Management [3-0, 3 cr.]
This course applies the principles of food, and beverage, management in full service restaurants, either independent restaurants, or those within commercial/non-commercial food service operations. Class lectures introduce the administrative concepts that are involved in restaurant management. Dining room setup, table setup, plate placement, carving, flambé, and wine service, will be demonstrated in laboratory settings.

HOM211 Introduction to Travel and Tourism [3-0, 3 cr.]
This course entails a survey of travel and tourism. It focuses on concepts, terminology, demographics, financial significance, and trends. The course will also evaluate the economics, social, and political, impact of travel and tourism, including market, transportation, media, and destination development.

HOM231 Wine, Spirits and Cigars [1-0, 1 cr.]
This course studies the appreciation of wine, spirits, and cigars. This is a course designed to teach students about the quality, origin, characteristics, vintage, and all other personalities, that make a good wine superior.
HOM304 Hotel Operations [3-0, 3 cr.]
This course entails the study of organization, planning, leadership, decision-making, and the administration of hotels, with emphasis on front desk operations. The course also entails the investigation of the interdependence of the housekeeping engineering, security, guest services, food and beverage, marketing, personnel, purchasing, accounting, and front desk departments, in successful hotel operations. Students will explore computer information systems used in hotel operations.

HOM306 Quantity Food Production/Catering [3-0, 3 cr.]
Using the functions of management, this course applies the principles of food production, and cafeteria service, in quantity for institutions, and commercial food service operations. This capstone food and beverage management course brings together food production, cost control, personnel, and organizational, management, while providing students with an opportunity to exercise their ability, and creativity, in managing a catered event.

HOM308 Cost Control in RHI [3-0, 3 cr.]
This course entails an analysis of the fundamentals and techniques of cost control in food service, and hotel management. Management procedures to control costs from the purchase of products through the service are studied. Emphasis is placed on strategic planning, budgeting, efficiency, labor management and productivity, energy management, production, service, and computers, as they relate to controlling costs.

HOM311 Organization and Administration in RHI [3-0, 3 cr.]
This course covers the study of the organization, management, and administration, of restaurants, hotels and institutional programs, with emphasis on planning, leadership, and decision making, and the investigation of effective communication, laws, regulations, and standards, as they relate to management. The course considers merchandising, and promotion restaurants, hotels and institutions, as well as principles of education, and effective teaching methods, as they relate to employee training and in-service education. The course also covers the study of human relations, and group dynamics, and emphasizes on the use of computers, and their applications in organization, and management.

HOM321 Tourism Economic and Cultural Impact [3-0, 3 cr.]
This course covers the role of the economic, and cultural, impact of tourism in development and planning, as well as the nature of and the priorities given to, tourism and tourism policies, at national scales. This course presents important quantitative methods used by tourism planners, researchers, and consultants, including a description of their uses, and their relationship to other research techniques, as well as examples of contemporary applications. It focuses on the tools and practice of tourism analysis, and persuasive presentations of information. Topics include descriptive methods for defining, and describing, tourism, decision-making models for tourist behavior, forecasting models, and location analysis models.

HOM324 Convention and Service Management [3-0, 3 cr.]
This course is an overview of the convention industry, it includes meetings, tradeshows, conferences, and incentive travel. The management of convention centers and its relationship with local government is also discussed. The course will focus on the operational management of trade shows, including design, construction and risk management, as applied to project financing, fire protection, customer and workplace safety, and OSHA regulations.

HOM488 Seminar in Hospitality and Tourism [3-0, 3 cr.]
This course covers specific timely issues of RHI not covered in detail in the curriculum. This course may be substituted for another RHI course, given the consent of the Program Advisor.

HOM499 Senior Study Internship in RHI.
This course is a supervised work-study program in a hotel. Students have to enroll in this course in the summer of their junior year, for 15 hours a week, over a period of eight weeks. Students are expected to interview for positions in facilities, approved by an Internship Director. The consent of Internship Director is required.

INTERNATIONAL BUSINESS

IBS311 Managing the Multinational Corporation [3-0, 3 cr.]
The course covers the strategies and tactics that international managers use to design, operate, control, and implement business activities in the modern world, by emphasizing various functions of international business, including distribution and logistics, production, global sourcing, export strategies and sales, strategic alliances, and international human resources management. The course then covers the coordination of complementary tasks among a diverse number of international units, be it branches, subsidiaries, sales offices, and shipping points.
Prerequisite: MGT201 Introduction to Management, and MKT 201 Introduction to Marketing.

IBS321 Global Financial Management [3-0, 3 cr.]
The course covers the environment of international financial management, foreign exchange risk management, multinational working capital management, financing foreign operations, special financing vehicles, international banking trends and strategies, corporate strategy and foreign direct investment, and the measurement and management of country risk.
Prerequisites: FIN301 Managerial Finance.

IBS 488 Topics in International Business [3-0, 3 cr.]
This course covers a broad range of topics in International Business including growth through international expansion, multinationals, designing and managing global operations. The course could be taken more than once for credit when topics differ.
Prerequisites: refer to IBS requirements and the specific topic offered.
COURSE DESCRIPTIONS

**MANAGEMENT**

**MGT201 Introduction to Management [3-0, 3 cr.]**
This course is a study of the management principles and concepts, specifically its history and philosophy, and the processes, decision making, planning, organizing, actuating and controlling.

**MGT301 Organizational Behavior [3-0, 3 cr.]**
This course covers the organizations’ social psychology which includes: individual perception, motivation, and learning and communication style. It also covers group dynamics, as related to problem solving and decision making, leadership style, word structuring and the larger environment.
Prerequisite: MGT201 Introduction to Management.

**MGT401 Project Management [3-0, 3 cr.]**
This course covers the problems of managing projects on identification, design, appraisal, selection, organization, operations, supervision and control, completion and evaluation.
Prerequisites: Senior Standing, ACC202 Principles of Accounting II, and MGT201 Introduction to Management.

**MGT420 Strategic Planning and Policy Formulation [3-0, 3 cr.]**
This course deals with the study, and understanding, of the strategic planning stages necessary to define, analyze, design, formulate, and implement, the strategy, or strategies, that an organization follows. The aim of this course is to provide the tools necessary for students to comprehend, and to act on strategic decision-making. Students will be acquainted with the design of logical stages that define and generate sound business strategies, and how to implement these, aiming at achieving long-term success for the organization. In addition, this course will emphasize the management skills needed to carry out this practice. Industry case studies will be used to examine success, as well as failure, stories of organizations.

**MGT441 Human Resources Development [3-0, 3 cr.]**
This course is based on the functions of management. It provides the students with the tools necessary to run contemporary functions applied in human resources development. Having known the classical functions of personnel management, and based on the continuous change of organizations, students will cover the advanced topics in strategic management of human resources, training and development, performance appraisal management, career planning, technology implementation, and other new happenings in the realm of human resources.

**MGT450 Special Topics in Management [3-0, 3 cr.]**
This course covers management topics not usually included in the curriculum. It offers a detailed understanding of timely issues, and applications in the world of production and management, both in private as well as in public frameworks. Operations and production management, entrepreneurship, and small business management are covered, among other topics. This course requires the consent of the Program Advisor.

**MGT499 Senior Study [3-0, 3 cr.]**
This course involves case studies, research readings, and field projects. It looks at recent research topics from a practical standpoint.
Prerequisite: Senior Standing.

**MIS INFORMATION SYSTEMS**

**MIS211 Management Information Systems I [3-0, 3 cr.]**
This course covers the problems of managing the information system resource, combining case studies, and lectures, to facilitate critical thinking on computer acquisition, information systems development, and organizational development of end-user computing.
Prerequisite: ACC202 Principles of Accounting II.

**MIS212 Management Information Systems II [3-0, 3 cr.]**
This course explores, on a more advanced level, the variety of networking and telecommunication environments applied in business. Applications in database management, decision support, and decision analysis, are also covered. Students will explore the analysis, design and management of information systems.
Prerequisite: BLIS211 Management Information Systems.

**MIS350 Technology Management [3-0, 3 cr.]**
With the fast changing market dynamics, and the accelerated advancements in technology, the manager is faced with increased pressure in identifying, and taking advantage of, opportunities arising from such changes. This course provides grounding in technology strategy, and tackles the role of technology in the competitive positions of the firm. It covers managerial decision making related to the investment in, adoption of, and the use of, technology to maneuver in the market. Emphasis will be placed on managerial aspects, and the dimensions of competition, such as degrees of technological leadership, specialization, and operational efficiency.

**MIS410 Enterprise-Wide Business Performance Modeling [3-0, 3 cr.]**
This is an integration course in enterprise-wide analysis, and management that raises concepts, and applications, from multiple managerial functions. It provides an overall view of the enterprise including the structure, procedures, systems, and people, necessary to design, re-engineer the processes, and lay the foundations for the planning and implementation of large-scale MIS solutions. Emphasis is placed on the relationship between such solutions, and business results of the enterprise. The students will learn to perform an in-depth analysis, and develop models that connect company strategy with its operational functions, and its internal capacity in terms of people, process, and technology.
This elective course in offered as needed.

**MIS488 Special Topics in E-business [3-0, 3 cr.]**
This course will accommodate a series of topics in e-business, with emphasis on the managerial aspects of information systems. The course draws on real life cases from the private, and public, sectors. It provides the foundations of building a customer-centric solution. The student will have the opportunity to go through all the stages of building, and commercializing, e-business solutions from the market trend analysis, through user requirements, and technological specifications, to planning, building, maintaining and managing e-business.
The course could be taken more than once for credit when topics differ.
COURSE DESCRIPTIONS

MKT499 Senior Study in MIS [3-0, 3 cr.]
This is a capstone course where students are engaged in projects that are comprehensive in nature. The emphasis will be on utilizing the knowledge, and the skills, acquired throughout the Program in designing and implementing solutions to a set of given M.I.S. problems in business, government, or other more general settings.
Prerequisite: Senior Standing.

MARKETING

MKT201 Introduction to Marketing [3-0, 3 cr.]
This course analyzes the elements of the marketing mix: product pricing, promotion and distribution decisions. Topical coverage includes the legal and social environments influencing the marketing process.

MKT301 Promotion Management and Marketing Communication [3-0, 3 cr.]
This course is based on the dynamics of the decision making process concerning the promotional blend, mainly advertising and sales promotion) as part of the marketing mix. Topics include promotion budget, budget allocation among different promotional tools, and developing promotional programs. Students explore the issues of compatibility between promotions and the marketing strategy, consumer response to different messages, creativity, and trade response to different promotional tools.
Prerequisites: MKT201 Introduction to Marketing.

MKT304 Consumer Behavior [3-0, 3 cr.]
This course covers customer satisfaction (the core of the marketing concept), and understanding consumers, and their behavior (the basis of successful marketing strategies and programs). It provides an overview of the current knowledge about consumer behavior. Basic behavioral science and marketing specific techniques, used in the marketing practice, are covered.
Prerequisites: MKT201 Introduction to Marketing.

MKT311 International Marketing [3-0, 3 cr.]
This course offers knowledge from two perspectives: Marketing concepts, and Applications, in a dynamic environment of globalization.
Prerequisite: MKT201 Introduction to Marketing.

MKT421 Marketing Research [3-0, 3 cr.]
This course provides students with the analytical tools to collect, and analyze, market data. Topical coverage includes principles of scientific research, techniques, methodological problems, organization, and management of marketing research.
Prerequisites: MKT201 Introduction to Marketing, STA201 Business Statistics, and ECO201 Microeconomics, or the consent of the Division.

MKT488 Topics in Marketing [3-0, 3 cr.]
The course covers special topics in marketing such as distributional channels and logistics, services marketing, e-marketing, and sales management.
The course could be taken more than once for credit when topics differ.
Prerequisites: MKT201 Introduction to Marketing.

MKT499 Senior Study [3-0, 3 cr.]
This course involves case studies, research readings, and field projects. It looks at the recent research topics from a practical standpoint.
Prerequisite: Senior Standing.

EXECUTIVE MASTER OF BUSINESS ADMINISTRATION (E.M.B.A.)
Each course is worth one credit.

ACCOUNTING

ACC710 Financial Accounting and Reporting [1-0, 1 cr.]
This course covers the objectives of financial accounting and reporting, and classified financial statements, and their use in decision making. Topics include the single and multiple steps income statements, classified balance sheets, statements of cash flows, and basic financial statements.

ACC712 Accounting for Business Investing Activities [1-0, 1 cr.]
This course covers the concepts, and methods, used in accounting for current, and noncurrent, assets, including accounting systems and procedures, and internal controls involved. Topics include accounting for cash, marketable securities, receivables, inventories, and plant assets.

ACC714 Accounting for Business Financing Activities [1-0, 1 cr.]
This course covers the accounting for liabilities and corporations stockholders’ equities. Topics include accounting for notes payable, payroll, leases, accrued and contingent liabilities, and stockholders’ equity.

ACC716 Accounting for Managerial Decision Making [1-0, 1 cr.]
This course covers capital budgeting, the allocation of scarce resources, product pricing, and other non-routine decisions. Topics include capital expenditures’ decisions, cost based product pricing, and linear programming for profit maximization.

ACC718 Cost Accounting [1-0, 1 cr.]
This course covers the different concepts, and methods, used in determining the costs of service engagements, and manufactured products. Topics include job and process costing, activity based costing, and cost allocations.

ACC719 Budget and Control [1-0, 1 cr.]
This course covers the principles, and methods, used in preparing budgets, and their use as control tools through variance analysis. This course also covers variable costing, standard costing, and cost-volume-profit analysis. Topics include the operating budget, the cash budget, the flexible budget, and measuring budget variances.

ACC720 Auditing for Auditees [1-0, 1 cr.]
This course overviews the work of auditors, and emphasizes the conditions that may allow auditors to reduce the extent of their audit procedures and still render unqualified opinions. Topics include audit opinions, audit standards, and evaluating audit risk.
FIN725 The Euro and Business [1-0, 1 cr.]
This course introduces the latest developments in the performance of the Euro; it compares the Euro to other key currencies in international portfolios, and discusses the implications of the new currency for international, and domestic, business enterprises.

FIN726 Financial Markets in the Middle East [1-0, 1 cr.]
This course discusses the performance of financial markets operating in the Arab Middle East, it examines their degree of development, the instruments they provide, and their role in financing various business activities.

FIN730 Capital Budgeting [1-0, 1 cr.]
This course explores the investment decisions concerning long term assets in a corporation. It covers an in-depth analysis of Capital Budgeting techniques, cash flow estimation, lease versus buy decisions, and capital budgeting under uncertainty environments.

FIN732 Mergers & Acquisitions [1-0, 1 cr.]
This course examines the role of mergers and acquisitions in corporate restructuring. It explores the mechanics to evaluate corporate investment decisions, and the means of financing acquisitions. Topics include tools and techniques in the valuation of mergers and acquisitions, financing mergers and acquisitions, and the role of investment bankers in mergers and acquisitions.

FIN733 Long-Term Financial Policies [1-0, 1 cr.]
This course examines the various sources of long-term financing, and investigates the decisions to choose among these sources, in order to maximize the value of the firm. Topics include issues in stock and debt financing, optimal capital structure, dividend policy, cost of capital, and business, and financial, leverage.

FIN735 Working Capital Management [1-0, 1 cr.]
This course investigates the approaches in managing short-term assets, and liabilities. It focuses on working capital policy, and liquidity management. Topics include cash management, short-term financing, credit management, and inventory policy.

FIN740 Financial Statements Analysis and Forecasting [1-0, 1 cr.]
This course explores the tools and techniques used in analyzing the performance of a corporation, and examines the approaches used to forecast long term financing. Topics include ratio analysis, sources and uses of capital, statement of cash flows, duPont analysis, cash flow forecasting, and proforma financial statements.

FIN742 Portfolio Theory [1-0, 1 cr.]
This course examines the concepts of risk and return for individual securities, and within the context of a portfolio, and investigates how investors allocate their investments to maximize their expected utility. Topics include measurement of risk and return, efficient frontier, diversification, and the capital asset pricing model.

FIN743 Bond Analysis [1-0, 1 cr.]
This course is an overview of the bond securities and markets, and investigates the various types of bonds, and how they are traded, and the term structure of interest rates. Topics include bond valuation, and price quotes in the financial press, yield calculations, types of debt instrument, and bond portfolio management.
COURSE DESCRIPTIONS

FIN745 Financial Derivatives I [1-0, 1 cr.]
This course explores the foundations of forward and futures contracts, and their markets, and explains the mechanics of using forward and futures contracts in hedging investment portfolios. It also investigates forward and futures’ pricing models, including stock index futures, interest rate futures, and foreign currencies futures.

FIN746 Financial Derivatives II [1-0, 1 cr.]
This course deals with options contracts, and options markets, and investigates the various types of options, and how, and where, they are traded. It also explores the various investment strategies using options, and covers option valuation and portfolio hedging.

FIN749 Investment Banking [1-0, 1 cr.]
This course explores the role of investment banks in serving the needs of corporations, or governments, wishing to finance businesses, or to invest capital. Topics include going public, raising capital, syndication, private placement, initial public offerings, underwriting, equity, and bond markets.

FIN780 Topics in Banking and Finance [1-0, 1 cr.]
This course addresses selected topics, spanning a wide range of banking and finance issues. The seminar may be taken for credit more than once when topics differ.

ECONOMICS & STATISTICS

ECO711 Budgeting and Fiscal Policy [1-0, 1 cr.]
This course covers the government budgeting process by addressing various issues of revenue and expenditure in developing economies, the nature of budget deficits and government debt, the methods to alleviate these problems, and the role of fiscal policy.

ECO712 Monetary Policy [1-0, 1 cr.]
This course covers the basic functioning of monetary policy in stabilizing economic activity, the role of the central banks in managing, and controlling, monetary aggregates, and the relationship between money and the aggregate economy.

ECO715 Managerial Economics [1-0, 1 cr.]
This course covers the basic theory of the firm, by addressing cost analysis and pricing under different types of market structures, centering on imperfect competition.

ECO711 Taxation of Personal and Corporate Income [1-0, 1 cr.]
This course analyzes the impacts of personal, and corporate, income taxes, on the behavior of individuals and firms. Specifically, it addresses the incentives created by imposition, and/or changes, of the various types, and rates of taxes (corporate and personal income taxes) or allowances, (depreciation allowances, investment tax credits).

ECO722 Regulation of Business [1-0, 1 cr.]
This course examines the variety of economic activities regulated by the government. Specifically, it concentrates on the functioning of imperfect markets for goods and services, the motivations for regulation, and that of regulators, past experiences with regulations, and various considerations in the design of regulations.

ECO725 Forecasting Business and Economic Indicators [1-0, 1 cr.]
This course represents an overview of forecasting issues, methods, and support systems. Students will learn how to decompose a time series into its logical elements, to assess forecasting accuracy, and to implement forecasting procedures using professional software.

ECO730 Data Analysis [1-0, 1 cr.]
This course shows how to design, validate, and interpret the findings of regression models in a variety of business applications. Students will leave this course knowing how to create a regression model using professional software, fit a model to the data, interpret model estimates, calculate and interpret elasticities of demand, diagnose model deficiencies, and evaluate predictive accuracy, within, and out of, a sample.

ECO780 Topics in Economics and Statistics [1-0, 1 cr.]
This course addresses selected topics, spanning a wide range of economics and statistics issues. The seminar may be taken for credit more than once when topics differ.

MANAGEMENT

MGT710 Management of Information Technology [1-0, 1 cr.]
This course introduces students to the different information technologies, to be able to develop an understanding of their role in providing management support. Course topics include many forms of networking, and artificial intelligence.

MGT712 Advanced Organizational Behavior [1-0, 1 cr.]
This course introduces the various fundamental behavioral aspects of human resources within the organization. Topics include leadership, motivation, performance appraisal, and organizational design.

MGT714 Competitive Advantage of Operations Management [1-0, 1 cr.]
This course follows the systematic approach of management to solve operations management problems. Topics include the planning, evaluation, and control, of operations, forecasting and inventory management, product life cycle management, resource allocation, quality of work environment, and technological change.

MGT717 The Executive Manager and Strategy Implementation [1-0, 1 cr.]
This course aims to develop, guide, and mentor, the student’s capabilities to comprehend management skills in setting priorities, integrating action programs, communicating, and intervening. This course emphasizes the last stages of the decision making process, namely, action and implementation.

MGT719 Global Competitive Strategy Management [1-0, 1 cr.]
This course allows students to identify, plan, and execute, the steps of strategic management formulation to face competition, and the necessary steps to long-run survival, and growth, as applied to the global competitive markets. The course includes environmental analysis skills, assessment of resource strength and limitations, and the recognition of adequate organizational structure and values.
COURSE DESCRIPTIONS

MGT722 Organizational Constituents as Entrepreneurs [1-0, 1 cr.]
This course offers a critical evaluation and discussion of the current, and evolving, fast-changing global marketplace, and the impact on companies in their quest for cost cutting, outsourcing, and fast response. The course will also focus on small businesses, and the opportunities generated due to the changes in population demographics.

MGT725 Multinational Business Management [1-0, 1 cr.]
This course focuses on the new emerging border-less world, based on the international business environment, and using factors like legal-political issues, socio-cultural factors, and economic environment. The course will describe the market entry strategies that businesses use to develop foreign markets.

MGT728 Managing Conflicts and Negotiations [1-0, 1 cr.]
This course considers the behavioral aspects that managers have to define to understand conflicts. The course focuses on the negotiation skills to reduce tensions, including the model of styles to handle conflicts.

MGT730 Managing Planned Change [1-0, 1cr.]
This course offers a critical review of the strategic management approaches, and perspectives, and their relation to change in organizations. The course also offers skills to plan, design, and to execute change management approaches, and techniques.

MGT732 Corporate Strategy [1-0, 1 cr.]
This course reconciliates between industry analysis and corporate competitive capabilites, in a hands-on exercise in which teams of students formulate a corporate strategy, in the context of global forces. Students develop, and defend, a strategic plan for a local company in a given industry.

MGT733 The Social Responsibility of Business [1-0, 1 cr.]
This course identifies, and analyzes, social and legal issues affecting the business decision making process. Markets are looked at as huge social institutions affecting organizations as they operate from within. Students will identify specific social, and legal, signals, which could be fundamental to the wellbeing of the organization.

MGT735 Managerial Performance Simulation [1-0, 1 cr.]
This course involves a hands-on exercise where students assume positions in a managerial setting. The students focus on the skills, and issues, typically faced by managers in their day-to-day work. Students’ decision making is measured based on their effectiveness, and productivity.

MGT736 Enhancing Managerial Communication Skills [1-0, 1 cr.]
This course begins with the concept of communication as a fundamental skill that managers should possess. Students will develop and enhance their communication skills in a business environment, through cooperative learning.

MGT737 Modern Human Resource Management [1-0, 1 cr.]
This course presents the complexities, challenges, ethical issues, and tradeoffs involved in effectively managing human resources in today’s increasingly competitive global environment. The course also provides a thorough analysis of the traditional areas of human resource management, namely, recruitment, compensation, performance appraisal, human resource planning, job evaluation, and training and development.

MGT738 Personnel Economics [1-0, 1 cr.]
This course introduces personnel economics, and explains how a systematic and disciplined approach can be used by the human resource managers to base their decisions regarding recruitment and hiring, turnover, motivating workers and employees to higher levels of productivity, teams, benefits, and employee evaluation.

MGT739 Value Creation in Human Resource Management [1-0, 1 cr.]
This course answers the following fundamental question: “How can human resource management create value and deliver results?” The course discusses how human resource professionals can become business partners, players, and pioneers, and how human resource practices can be designed in such a way to enhance individual competencies, and organizational capabilities.

MGT740 Strategic Management in the Hospitality Industry [1-0, 1 cr.]
This course sheds light on the strategic issues and challenges that face contemporary organizations, and offers solutions to today’s complex corporate problems. Strategy formulation, implementation, and evaluation, are examined in relation to the firm’s competitive advantages.

MGT742 Tourism Planning and Development [1-0, 1 cr.]
This course acquaints students with selected theories, methods, techniques, current issues, practices, and principles that govern tourism development, through an exposure to a broad range of research conducted in the travel and tourism industry.

MGT745 Contemporary Trends in the Hospitality Industry [1-0, 1 cr.]
This course is designed to discuss and analyze the managerial process known as content analysis, to identify the major trends occurring in the hospitality and tourism industries, and to develop the technical skills required to interpret such trends.

MGT750 Leaders and Leadership [1-0, 1 cr.]
This course focuses on the issues of strategy, business, and corporate levels, in the context of global competition. Topics covered include the global market trends, executive brainstorming and benchmarking, decision making techniques, multidisciplinary analysis, and contemporary leadership trends.

MGT752 Teamwork and Self-Managed Work Teams [1-0, 1 cr.]
This course provides students with the knowledge and practice of developing an understanding of the formation, and function, of self-managed teams. Issues like the use and evolution of self-managed teams in the workplace, the ability to recognize and manage their personal style, and how it impacts their participation and performance in groups, and the pitfalls that prevent effectiveness in groups, are discussed.
COURSE DESCRIPTIONS

MKT710 Ethics in Marketing [1-0, 1 cr.]
This course offers the business skills of evaluating ethical situations in marketing, to stimulate practical discussions that teach students the fundamentals of ethical decision making in marketing.

MKT712 Emerging Markets and Adaptive Marketing Strategies [1-0, 1 cr.]
This course highlights many of the challenges of operating in emerging markets, it examines the interplay of finance, trade, and investment, in world emerging markets, and focuses on contemporary problems for business leaders by examining structural adjustment policies, as applied to marketing practices facing stabilization, privatization, liberalization, and the political economy of transition to a global market.

MKT715 Competitive Marketing Management Strategy [1-0, 1 cr.]
This course introduces the concepts of the strategic marketing process from the perspective of the marketing manager, and provides a framework for the analysis of problems in marketing management. Specific topics include the role of the marketing management strategy within the firm, an analysis of the marketing opportunities, a selection of target markets and market segmentation, the marketing strategies in a global marketplace, and the marketing mix decisions.

MKT718 Sales Management [1-0, 1 cr.]
This course emphasizes the marketing strategy, as applied to the sales force, and the role of the sales managers as leaders and team builders, which is a key competitive advantage in today’s environment. The aim of this course is to highlight the sales force as one of the company’s competitive core asset.

MKT721 Globalization and Electronic Commerce [1-0, 1 cr.]
This course considers the related topics of technology and globalization, and relates them to the changing nature of competition in the realm of the strategic marketing practices. The course explores the electronic commerce opportunities that globalization and technology present to the marketing managers.

MKT723 Marketing Channels and Logistics Strategy [1-0, 1cr.]
This course reviews the major elements of logistics, and examines the key requirements, and opportunities, for planning logistics strategy. Topics include logistics and corporate planning, manufacturing logistics, distribution or marketing channels’ logistics, procurement and supply, supply chain management, benchmarking, organization and management of logistics’ channels, and new trends in distribution.

MKT726 Advertising and Promotion Using Integrated Marketing Communications Strategy [1-0, 1cc.]
This course introduces students to the fast-changing field of advertising and promotion, from an integrated marketing communications perspective, which calls for the “big picture” approach to planning, marketing, and promotional programs, and coordinating the various communication functions.

MKT780 Topics in Marketing [1-0, 1 cr.]
This course addresses selected topics spanning a wide range of marketing issues. The seminar may be taken for credit more than once when topics differ.
MISSION
The Mission of the School of Engineering and Architecture at the Lebanese American University is to prepare students for productive professional careers, and successful graduate studies. The School Programs provide students with a comprehensive education, emphasizing critical thinking, technical aptitude, communication, and interpersonal skills, in addition to fostering research and lifelong learning. Based on the Mission of the University, the School aims at developing professionals who can operate effectively, and distinctively, in a globalized world.

DEGREE PROGRAMS

UNDERGRADUATE PROGRAMS
Associate in Applied Science (A.A.S.) in Interior Design
Bachelor of Arts (B.A.) in Interior Architecture
Bachelor of Science (B.S.) in Interior Design
Bachelor of Architecture (B.Arch.)
Bachelor of Engineering (B.E.) in:
> Civil Engineering
> Computer Engineering
> Electrical Engineering
> Industrial Engineering
> Mechanical Engineering
With Minors in:
> Computer Graphics
> Islamic Art and Architecture (B.A.D.)
> Packaging

GRADUATE PROGRAMS
Master of Science (M.S.) in:
> Civil and Environmental Engineering
> Computer Engineering
> Industrial Engineering and Engineering Management

The Engineering and Architecture Undergraduate Programs at LAU are designed to provide students with a rich academic, and professional, foundation, leading to successful careers in today’s global markets. While specific technical components are the central part of each of the Programs, courses in the Humanities and the Social Sciences prepare students to be well-rounded individuals, who can practice their profession with proper concern and attention to environmental, social, and economic problems. Furthermore, careful attention is given to the development of the student’s personality and work habits, stressing on personal skills that are key factors for successful careers. The teaching-learning process is meant to emphasize the development of practical competence, critical thinking, ability and passion for self-learning, as well as the capacity for teamwork, leadership, and entrepreneurship.

All the Undergraduate Engineering Programs require a minimum of four academic years and three Summers of studies, after the Lebanese Baccalaureate.

The Architecture Program requires a minimum of five academic years, and three Summers of studies.

All Programs are accredited by the Lebanese Government, and the Board of Regents of the State of New York.

The Graduate Engineering Programs are intended to offer Graduate Students the opportunity to widen the horizons of their theoretical and practical knowledge, to engage in basic, and applied, research, and to prepare themselves for further studies, or professional practice.
The Department of Architecture & Design offers the following degree programs:

### UNDERGRADUATE PROGRAMS

2. Bachelor of Arts (B.A.) in Interior Architecture.
3. Bachelor of Science (B.S.) in Interior Design.
4. Bachelor of Architecture (B.Arch.).

With Minors in:
- Computer Graphics
- Islamic Art and Architecture Design (I.A.A.D.)

### ASSOCIATE IN APPLIED SCIENCE IN INTERIOR DESIGN

The Associate in Applied Science in Interior Design Program offers a basic set of design studios, in addition to the General University courses included in the Foundation Year program, and a select number of courses, and design studios, from the Second year.

This Program offers a basic introduction to the field of Architecture and Interior Design, and may be completed in a minimum of two academic years (69 credits).

**Mission**

The Mission of the Associate in Applied Science in Interior Design is to give students a basic introduction to the field of Design.

**Educational Objectives**

The purpose of the Associate in Applied Science in Interior Design is to:

- Offer students, who successfully complete their studies, the Degree of Associate in Applied Science in Interior Design.
- Provide a platform for various Graduate Programs in Interior Architecture, Interior Design, and other Design fields.

**Learning Outcomes**

Graduates of the Associate in Applied Science in Interior Design Program will acquire the following skills:

- The ability to work as an assistant in a design related activity.
- The capacity to function in a design team.

**FIRST YEAR**

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<tr>
<th>Fall Semester (15 credits)</th>
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<tbody>
<tr>
<td>ARA101 Arabic Essay Reading and Writing I</td>
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<td>ENG101 English I</td>
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<td>CSC201 Computer Applications</td>
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<td>DES231 Design Studio I-A</td>
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<td>DES232 Design Studio I-B</td>
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<td>DES241 Technical Graphics I</td>
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<th>Spring Semester (15 credits)</th>
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<td>ARA102 Arabic Essay Reading and Writing II</td>
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<td>ENG102 English II</td>
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<td>HLT201 Basic Health</td>
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<td>DES233 Design Studio II-A</td>
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<td>DES234 Design Studio II-B</td>
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<td>DES240 Sketching</td>
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<th>Summer Modules I and II (9 credits)</th>
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<tr>
<td>——— Art Elective*</td>
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<td>——— Liberal Arts Curriculum Elective</td>
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<td>——— Liberal Arts Curriculum Elective</td>
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**SECOND YEAR**

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<th>Fall Semester (15 credits)</th>
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<tr>
<td>DES271 History of Design</td>
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<td>DES331 Design Studio III</td>
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<td>DES341 Technical Graphics II</td>
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<th>Spring Semester (15 credits)</th>
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<td>DES251 Introduction to Computer Graphics</td>
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<td>DES261 Introduction to Design</td>
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<tr>
<td>DES332 Design Studio IV</td>
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<td>——— Liberal Arts Curriculum Elective</td>
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<tr>
<td>PED ——— Physical Education</td>
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### DEPARTMENT OF ARCHITECTURE & DESIGN

#### Educational Objectives

The purpose of the Bachelor of Science in Interior Design is to:

- **a.** Offer students, who successfully complete their studies, the Degree of Bachelor of Science in Interior Design.
- **c.** Develop a broad base of theoretical knowledge and the necessary practical skills to assert the role of the interior designer as a synthesizer of the different factors which affect the living environment.
- **d.** Expose students to the current issues in theory and practice, and to the latest technology in the field.

#### Learning Outcomes

Graduates of the Bachelor of Science in Interior Design Program will acquire the following skills:

- **a.** The ability to practice interior design in various contexts and cultures.
- **b.** The ability for critical thinking, and the ability for problem solving.
- **c.** The ability to identify design issues, and to provide solutions.
- **d.** The ability to design and execute projects related to interior design, renovation, restoration and other projects.
- **e.** Flexibility to deal with a large scope of interior design problems, and to understand the different materials and technologies, as well as space planning, furniture design, and other interior design specific tasks.
- **f.** The capacity to deal innovatively with projects of different types and scales.
- **g.** The capacity to elaborate projects with innovative structural systems, detailing, and material.
- **h.** Flexibility to operate in a multi-disciplinary environment.
- **i.** The ability to serve the community in organizations in both the public and private sectors.

### MAJOR REQUIREMENTS

#### FIRST YEAR

**Fall Semester (13 credits)**

- DES231 Design Studio I-A 3
- DES232 Design Studio I-B 3
- DES241 Technical Graphics I 2
- DES271 History of Design 2
- ART221 Drawing I 3

**Spring Semester (14 credits)**

- DES233 Design Studio II-A 3
- DES234 Design Studio II-B 3
- DES240 Sketching 2
- DES251 Introduction to Computer Graphics 3
- DES261 Introduction to Design 2
- ETH201 Moral Reasoning 1

#### SECOND YEAR

**Fall Semester (16 credits)**

- DES331 Design Studio III 6
- DES351 Computer Graphics I 2
- DES341 Technical Graphics II 3
- DES371 History of Architecture I 3
- DES361 Theory I 2

**Spring Semester (16 credits)**

- DES332 Design Studio IV 6
- DES352 Computer Graphics II 2
- DES342 Technical Graphics III 3
- DES372 History of Architecture II 2
- —— General University Requirement** 3

**Summer Module I and II (10 credits)**

- PHO211 Photography I 3
- —— Art Elective* 3
- PED2— Physical Education 1
- —— General University Requirement** 3

#### THIRD YEAR

**Fall Semester (17 credits)**

- DES431 Design Studio V 5
- DES421 Design Technology I 2
- DES401 Interior Design Workshop I 1
- DES402 Interior Design Workshop II 1

**Spring Semester (14 credits)**

- DES432 Design Studio VI 5
- DES422 Design Technology II 2
- —— General University Requirement** 3
- —— General University Requirement** 3

**Summer Module I and II (10 credits)**

- PHO212 Photography II 3
- —— General University Requirement** 3

**General University Requirements**

- **ARA2 – 3 –** Arabic Language/Literature 3
- **ENG202 – 3 –** English Language/Literature 3
- **ENG203 – 3 –** English Language/Literature 3
- **STA202 – 3 –** Statistics 3
- **ETH201 – 1 –** Ethical Reasoning 1
- **HUT201 – 1 –** Health 1
- **PED2 – 1 –** Physical Education 1
- **LIB – 3 –** Liberal Arts Elective 3

---

*Art Electives:
- ART211 Ceramics I 3
- ART212 Ceramics II 3
- ART221 Drawing I 3
- ART222 Drawing II 3
- ART212 Ceramics II 3
- ART222 Drawing II 3
- ART334 Graphics 3
- ART341 Painting I 3
- ART342 Painting II 3
- ART351 Sculpture I 3
- ART352 Sculpture II 3
- COM241 Introduction to Acting 3
- COM345 Modern Drama 3
- MUS201 Fundamentals of Music 3
- PHO212 Photography II 3

**General University Requirement**

- **ENG – 3 –** English Language/Literature 3

---

**Liberal Arts Curriculum Elective**

- **ENG – 3 –** English Language/Literature 3
- **STA – 3 –** Applied Science 3
- **PED – 1 –** Physical Education 1
- **LIB – 3 –** Liberal Arts Elective 3

---

*Required Courses:

- **DES – 1 –** Design 1
- **DES – 2 –** Design 2
- **ART – 3 –** Art 3
- **ETH – 1 –** Ethical Reasoning 1
- **LIB – 3 –** Liberal Arts Elective 3

---

**General University Requirement**

- **ENG – 3 –** English Language/Literature 3
- **STA – 3 –** Applied Science 3
- **PED – 1 –** Physical Education 1
- **LIB – 3 –** Liberal Arts Elective 3

---

**Required Courses (Year 3):**

- **DES – 3 –** Design 3
- **DES – 4 –** Design 4
- **ART – 5 –** Art 5
- **ETH – 2 –** Ethical Reasoning 2
- **LIB – 3 –** Liberal Arts Elective 3

---

**General University Requirement**

- **ENG – 3 –** English Language/Literature 3
- **STA – 3 –** Applied Science 3
- **PED – 1 –** Physical Education 1
- **LIB – 3 –** Liberal Arts Elective 3

---

**Required Courses (Year 4):**

- **DES – 5 –** Design 5
- **DES – 6 –** Design 6
- **ART – 7 –** Art 7
- **ETH – 3 –** Ethical Reasoning 3
- **LIB – 3 –** Liberal Arts Elective 3

---

**General University Requirement**

- **ENG – 3 –** English Language/Literature 3
- **STA – 3 –** Applied Science 3
- **PED – 1 –** Physical Education 1
- **LIB – 3 –** Liberal Arts Elective 3

---

**Required Courses (Year 5):**

- **DES – 8 –** Design 8
- **DES – 9 –** Design 9
- **ART – 10 –** Art 10
- **ETH – 4 –** Ethical Reasoning 4
- **LIB – 3 –** Liberal Arts Elective 3

---

**General University Requirement**

- **ENG – 3 –** English Language/Literature 3
- **STA – 3 –** Applied Science 3
- **PED – 1 –** Physical Education 1
- **LIB – 3 –** Liberal Arts Elective 3

---

**Required Courses (Year 6):**

- **DES – 11 –** Design 11
- **DES – 12 –** Design 12
- **ART – 13 –** Art 13
- **ETH – 5 –** Ethical Reasoning 5
- **LIB – 3 –** Liberal Arts Elective 3

---

**General University Requirement**

- **ENG – 3 –** English Language/Literature 3
- **STA – 3 –** Applied Science 3
- **PED – 1 –** Physical Education 1
- **LIB – 3 –** Liberal Arts Elective 3
DEPARTMENT OF ARCHITECTURE & DESIGN

BACHELOR OF ARTS IN INTERIOR ARCHITECTURE

This Bachelor of Arts in Interior Architecture Program includes the basic foundation of the Bachelor of Science in Interior Design Program, but adds an additional year of specialization that allows students a more comprehensive exposure to the profession of Interior Design. In addition, this Program prepares students for potential specialization, and Graduate studies in areas such as Industrial Design, Historic Preservation, Furniture Design, and other Graduate fields of study.

Students enrolled in the Bachelor of Arts in Interior Architecture also have the option of adding to their studies, by focusing their professional electives in one of the areas of specialization: Islamic Art and Architecture, or Graphic Design.

The total number of credits required for the Degree of Bachelor of Arts in Interior Architecture is 139 (excluding the Freshman year). The total number of credits for the Bachelor of Arts in Interior Architecture, with a Minor in Islamic Art and Architecture, or a Minor in Graphic Design, is 147 or 151 credits respectively.

This Program may be completed in four academic years (after the Freshman year) including Summer modules. Students may elect to extend the Program over a longer period of time if they choose not to take Summer modules.

Students enrolled in the Bachelor of Science in Interior Design may apply to this Program, and would, normally, complete its requirements in one additional year of study.

Mission

The Mission of the Interior Architecture Program is to give students a comprehensive education, based on the humanistic approach to the discipline. This Program prepares students to assume their role as Interior Architects upon graduation, and/or to pursue Graduate studies in Interior Architecture, and other related fields.

Educational Objectives

The purpose of the Bachelor of Arts in Interior Architecture is to:

a. Offer students who successfully complete their studies the Degree of Bachelor of Science in Interior Architecture.


c. Develop a broad base of theoretical knowledge, and the necessary practical skills.

d. Assert the role of the interior architect as a synthesizer of the different factors which affect the built environment.

e. To expose students to the current issues in theory and practice, and to the latest technology in the field.

Learning Outcomes

Graduates of the Bachelor of Arts in Interior Architecture will acquire the following skills:

a. The ability to practice interior architecture in various context and cultures.

b. The capacity for critical thinking, and the ability for problem solving.

c. The ability to identify design issues, to conduct research, and to provide solutions.

d. The ability to design, and execute, projects relating to interior architecture, renovation, restoration, and other related projects.

e. A flexibility to deal with a large scope of interior design problems, and to understand the different materials and technologies, as well as space planning, furniture design, and other interior design specific tasks.

f. The capacity to deal innovatively with projects of different types and scales.

g. The capacity to elaborate projects with innovative structural systems, detailing, and material.

h. The ability to engage in critical thinking and problem solving.

i. The capacity to operate in a multidisciplinary environment.

j. The capacity to serve the community in organizations of both public and private sectors.

DEPARTMENT OF ARCHITECTURE & DESIGN

MAJOR REQUIREMENTS

FIRST YEAR

Fall Semester (13 credits)

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<tr>
<td>DES241</td>
<td>Technical Graphics I</td>
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<td>DES271</td>
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Spring Semester (14 credits)

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<td>DES234</td>
<td>Design Studio II-B</td>
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Summer Modules I and II (10 credits)

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SECOND YEAR

Fall Semester (16 credits)

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Spring Semester (15 credits)

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Summer Modules I and II (10 credits)

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THIRD YEAR

Fall Semester (16 credits)

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<td>DES523</td>
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Spring Semester (14 credits)

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<td>Interior Design Workshop II</td>
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<td>DES422</td>
<td>Design Technology II</td>
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<tr>
<td>DES524</td>
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Summer Modules I and II (8 credits)

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FOURTH YEAR

Fall Semester (13 credits)

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*Art Electives:

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<td>ART211</td>
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<td>ART212</td>
<td>Ceramics II</td>
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<tr>
<td>ART222</td>
<td>Drawing II</td>
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<tr>
<td>ART334</td>
<td>Graphics</td>
<td>3</td>
</tr>
<tr>
<td>ART341</td>
<td>Painting I</td>
<td>3</td>
</tr>
<tr>
<td>ART342</td>
<td>Painting II</td>
<td>3</td>
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<td>ART351</td>
<td>Sculpture I</td>
<td>3</td>
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<td>ART352</td>
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<tr>
<td>COM225</td>
<td>The Art of Film</td>
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<tr>
<td>COM241</td>
<td>Introduction to Acting</td>
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<td>COM242</td>
<td>Introduction to the Art of Theater</td>
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<tr>
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<td>Modern Drama</td>
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<td>MUS201</td>
<td>Fundamentals of Music</td>
<td>3</td>
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<tr>
<td>PHO212</td>
<td>Photography II</td>
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</tbody>
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This Program may be completed in four academic years (after the Freshman year) including Summer modules. Students may elect to extend the Program over a longer period of time if they choose not to take Summer modules.

Students enrolled in the Bachelor of Science in Interior Design may apply to this Program, and would, normally, complete its requirements in one additional year of study.
### COURSE DESCRIPTIONS

**DEDES231 Design Studio I-A [2-2, 3 cr.]**
This studio will emphasize visual perception, through an initiation into the different modes of representation, and formal analysis of the elements of visual language (line, volume, texture, color, shape). The studio also covers the effects of light on forms, which constitutes the basics of two-dimensional studies. Exercises in this course are intended to sharpen and focus the students’ perception of forms, and to train the eye and the hand in the process of interpretation, and representation of forms.

**DEDES232 Design Studio I-B [2-2, 3 cr.]**
This studio is a study of the structural characteristics as foundational to an understanding of the manifestation of different forms, natural or artificial. A variety of concepts, and processes, will be explored with considerable emphasis placed on learning by making, stressing different forms of plastic modeling from wood to metals, and requiring an active use of the workshops. A shop orientation session will be included in this module, as a required introduction to the basic tools and safety procedures for using the wood and metal shop.

**DEDES233 Design Studio II-A [2-2, 3 cr.]**
This studio will continue the development of visual perception in the two-dimensional field, introducing the principles and techniques of typography, elaborating projects that involve both traditional and digital media. The studio will also address composition, layout, and presentation, as a means of conceptual expression and communication in design.

**DEDES234 Design Studio II-B [2-2, 3 cr.]**
This studio covers the development of three-dimensional forms through exercises that involve formal, and structural, analysis, dissection, assembly, and reconfiguration. Projects in this studio are aimed towards the development of plastic skills and techniques in various materials (wood, metals, plastics), while developing the student’s analytical, artistic, and interpretative faculties.

**DEDES240 Sketching [1-2, 2 cr.]**
This course is a general course on sketching, stressing freehand drawing techniques with pencil, charcoal, as well as the basics of watercolor rendering.

**DEDES241 Technical Graphics I [1-2, 2 cr.]**
This course is an introduction to the basics of formal representation, with two-dimensional representation of objects through orthographic projections and auxiliary drawings, isometric and axonometric drawings, and the basics of shades and shadows. This course will also introduce the student to the various tools, and techniques, of technical drawing in pencil and ink.

**DEDES251 Introduction to Computer Graphics [1-3, 3 cr.]**
This course is an introduction to computer graphics, with the basics of generating and manipulating images using digital media, and covering monochrome patterns, control and mix of colors, raster images, scanning, pixel and vector graphics. The course includes basic exposure to computer platforms, as well as the basic software mainly used for computer graphics’ applications (Adobe Illustrator, Photoshop, etc.).

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### DEPARTMENT OF ARCHITECTURE & DESIGN

**General University Requirements:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ARA2 – 3</td>
<td>Arabic Language/Literature</td>
<td>3</td>
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<td>ENG202</td>
<td>Sophomore Rhetoric</td>
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<td>ENG203</td>
<td>Fundamentals of Oral Communication</td>
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<td>STA202</td>
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<td>ETH201</td>
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**History and Theory Electives:**

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<td>ARC471</td>
<td>Contemporary Trends</td>
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<tr>
<td>ARC472</td>
<td>Classical Art and Architecture</td>
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<td>Introduction to Islamic Art</td>
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<td>DES476</td>
<td>Art and Architecture of the Mamluks</td>
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<tr>
<td>DES477</td>
<td>Art and Architecture of the Umayyads</td>
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<td>DES478</td>
<td>The Decorative Arts of Islam</td>
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<td>DES484</td>
<td>Furniture Design</td>
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### DEPARTMENT OF ARCHITECTURE & DESIGN

**Professional Electives:**

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**DEPARTMENT OF ARCHITECTURE & DESIGN**
DEPARTMENT OF ARCHITECTURE & DESIGN

DES251 Introduction to Design [2-0, 2 cr.]
This course is an introduction to design in relation to art, photography, film, music, and other cultural manifestations of the 20th Century. This course is a creative presentation of the principles and practice of design, through a series of lectures, film screenings, art documentaries, and other events including guest speakers to initiate the students into the wider cultural framework of design.

DES252 History of Design [2-0, 2 cr.]
This course is a survey of the design activity from the 19th Century development of the Arts and Crafts' movement, and the subsequent developments of Art Nouveau and Art Nouveau, and the development of international, and regional, design trends in Italy, Scandinavia, and Japan, down to the more recent contemporary trends. This course will explore the various manifestations of these artistic developments in the Applied Arts from the 18th Century development of the full set of corresponding architectural drawings, which include plans, three-dimensional architectural models, with different materials and techniques, and the development of the full set of corresponding architectural drawings which include plans, sections and elevations, at appropriate scales.
Prerequisite: DES251 Introduction to Design.

DES331 Design Studio II [3-6, 6 cr.]
This course builds upon, and extends, the theoretical knowledge gained in the foundation studios, through a concrete application of conceptual and perceptual analysis to problems of small, and medium scale, in design, and the exploration of the limits and means of developing concepts into architectural form. The course will emphasize on the development of representational tools in translating ideas into architectural drawings and models, specifically stressing on the importance of drawing as a design tool.
Prerequisites: DES251 Introduction to Design I-A, DES252 Introduction to Design I-B, DES231 Design Studio I-A, and DES234 Design Studio II-B.

DES332 Design Studio IV [3-6, 6 cr.]
This course further elaborates the process of theoretical investigation of space, with emphasis on the communication of ideas through different representational models and tools. The course covers the study of small to medium scale projects, with emphasis on basic principles of spatial design. References and case studies of canonical works in modern design may serve as theoretical background in the continuing development of a theoretical foundation. The elaboration of a complete set of architectural drawings for the final design [plans/sections/elevations], in addition to models, will be expected at this stage.
Prerequisite: DES331 Design Studio III.

DES341 Technical Graphics II [2-2, 3 cr.]
This course covers the specific application of technical drawing to architectural plans, sections and elevations, with two-dimensional and three-dimensional representations, axonometric, perspective, shades and shadows applied to two-dimensional, three-dimensional and perspective drawings.
Prerequisite: DES241 Technical Graphics I.

DES342 Technical Graphics III [2-2, 3 cr.]
This course covers the translation of the technical drawings of canonical projects into three-dimensional architectural models, with different materials and techniques, and the development of the full set of corresponding architectural drawings which include plans, sections and elevations, at appropriate scales.
Prerequisite: DES341 Technical Graphics II.

DES351 Computer Graphics I [1-2, 2 cr.]
This course specifically addresses architectural applications in computer graphics, for drafting of architectural plans, sections, elevations, and details.
Prerequisite: DES251 Introduction to Computer Graphics.

DES352 Computer Graphics II [1-2, 2 cr.]
This course expands on the skills learned to cover new applications for surface and solid modeling, as well as rendering, material library, applications of light, leading to the development of complete project renderings.
Prerequisite: DES351 Computer Graphics I.

DES361 Theory I [2-0, 2 cr.]
This course introduces major aesthetic theories in the field of design, with an investigation of the relations between these theories and the physical space in its aesthetic, social, and cultural significance, examining the ideological frameworks behind paradigmatic changes, the movements in aesthetics, and their effects on the field of design.

DES371 History of Architecture I [2-0, 2 cr.]
This course will trace the development of Western architecture from the Greek and Roman period, to the Byzantine, Gothic, and Italian Renaissance, Late Renaissance and Baroque, with the analysis of the important icons and landmarks in art and architecture, and the principles, technical developments, and ideologies underlying these various movements. The course will also study the importance of cultural ideas and ideals, and their relation to the development of aesthetic forms, in particular, and civilization, in general.

DES372 History of Architecture II [2-0, 2 cr.]
This course will trace the developments in Architecture from Neo-Classicism, in the 18th and 19th Centuries, to the full development of Modern architecture in the 20th Century, examining the seminal projects and buildings that characterized these developments and their subsequent transformations in Post-Modernism, Deconstruction and later trends.

DES373 History of Landscape Design* [2-0, 2 cr.]
This course is an overview of the historical developments of landscape design, with a survey of the ideas, principles, and practical considerations, behind the major landscape design cases under study, from the classical to the modern period.

DES381 Architectural Photography [1-2, 2 cr.]
This course is an advanced photography course emphasizing specific photographic techniques, lighting, and composition, dealing with architectural and design subjects.
Prerequisite: PHO211 Photography I.

DES401 Interior Design Workshop I [0-2, 1 cr.]
This course is an intensive workshop that introduces new theoretical, and/or technical, themes in support of the design sequence.
Prerequisite: DES332 Design Studio IV.

* This is an elective course and it may be offered at irregular intervals.
DEPARTMENT OF ARCHITECTURE & DESIGN

DES402 Interior Design Workshop II [0-2, 1 cr.]
This course is an intensive workshop that introduces new theoretical, and/or technical, themes in support of the design sequence.
Prerequisite: DES342 Design Studio IV.

DES404 Landscape Design Workshop [1-2, 2 cr.]
This course is a case study, and application, of an actual landscape design project or competition, to be worked as an intensive workshop project.

DES421 Design Technology I [2-0, 2 cr.]
This course gives an overview of the major components of a building (structural systems, envelopes, foundation). It includes a basic survey of the various construction methods and techniques used in buildings, from wood construction, to concrete, concrete block, brick, steel and glass, and their different properties.

DES422 Design Technology II [2-0, 2 cr.]
This course focuses on the interior design applications. The course explores the different finishing materials and techniques used in interiors, with attention to problems of jointing, relation between different materials, insulation, finishes, and applications to specific design problems.

DES431 Design Studio V [3-4, 5 cr.]
This course will build upon the theoretical background of the previous studios, addressing, more specifically, interior design applications of small to medium scale, emphasizing details, materials, and finishes in realizing a spatial “idea” in form. References from contemporary design serve as background in the continuing development of a theoretical foundation for design.
Prerequisite: DES332 Design Studio IV.

DES432 Design Studio VI [3-4, 5 cr.]
This course will expose the interior design student to the field of historic preservation, with the introduction of the various methodologies and techniques of restoration, through the exploration of a concrete example of historic preservation, and restoration, of an interior, and its adaptive reuse.
Prerequisite: DES431 Design Studio V.

DES475 Islamic Architecture in the Age of Empires [2-0, 2 cr.]
This course surveys the development of Islamic architecture under the most powerful Islamic empires of the early modern period, namely the Ottomans of Turkey, the Mughals of India, and the Safavids of Iran. It reviews, and analyzes, a number of paradigmatic architectural examples from these illustrious Islamic dynasties, as a way of elucidating how each royal house possessed its unique vision of the world, a vision which ultimately led to the formulation of unique regional styles in architecture. Sacred, commemorative, and secular monuments, will be closely examined so as to illustrate how royal Muslim patronage evolved, how it produced structures of unprecedented scale and complexity, and how Islam and modernity began to come to terms.
Prerequisite: DES376 Introduction to Islamic Architecture.

DEPARTMENT OF ARCHITECTURE & DESIGN

DES476 Art and Architecture of the Mamluks [2-0, 2 cr.]
This course offers a close examination of the visual art of the Mamluks from the 13th Century until the beginning of the 16th Century. It will discuss, and analyze, the distinctive design vocabulary of the Mamluks, and trace its stylistic development across time and space. Cities, landmarks, and artifacts will be studied in their cultural, political, socio-economic, and aesthetic, contexts and evaluated in terms of courtly aspirations, and the sources of design inspiration. Furthermore, the course will employ a range of methodologies, and will explore a variety of themes including patronage, power, courtly taste, and the role of waqf.
Prerequisite: DES376 Introduction to Islamic Architecture.

DES477 Art and Architecture of the Umayyad* [2-0, 2 cr.]
This course offers an in-depth investigation of the material heritage of the Umayyad dynasty in Syria in the 17th and 18th Centuries. Monuments and artifacts will be examined in terms of their purpose and meaning, and will be interpreted in the context of cultural history. Particular attention will be afforded to the issue of the formation of Islamic art, and to the discernment of what can be regarded as “Islamic” in the visual art forms of Islam. This will involve exploring cross-cultural dialogues in the Levant in the first century of Islam, and the attempt to blend elements from the west and east in the framework of the new faith.
Prerequisite: DES376 Introduction to Islamic Architecture.

DES478 The Decorative Arts of Islam (650 – 1650)* [2-0, 2 cr.]
This course is a survey of the salient examples of decorative arts of Medieval Islam. Arts of the book, calligraphy, metalwork, ceramics, textiles, ivory and woodcarving, will be explored within their religious, political, and socio-economic contexts, as well as in terms of meaning, function, aesthetics and emerging forms. Particular emphasis will be given to the regional design vocabulary and to the evolution of style, content, and iconography. The course will also investigate the pivotal role of geometry, vegetable ornaments, and epigraphy in Islamic design, and the supremacy of color and pattern.
Prerequisite: DES375 Introduction to Islamic Art.

DES481 Construction Documents [2-4, 4 cr.]
This course is a preparation of a detailed set of working drawings for the execution of an interior design project, beginning with the architectural plans with details at appropriate scale, to the electrical and mechanical plans, furniture plans, finishing construction details, in addition to a basic overview of the design codes applied regionally and internationally.
Prerequisite: DES432 Design Studio VI.

DES484 Furniture Design* [2-0, 2 cr.]
This course is a survey of the major changes in the design of furniture, from the period of late Renaissance and Rococo, to the Styles period of the 18th and 19th Centuries, arts and crafts, to Modern and contemporary furniture design. The survey will also cover the different technologies and transformation in design processes.

* This is an elective course and it may be offered at irregular intervals
DESS23 Environmental Systems I [3-0, 3 cr.]  
This course covers the study and design of plumbing systems, in addition to heating, ventilation and air-conditioning systems, with a survey of the different systems and their properties, cost analysis, and environmental factors, including a survey of environmentally sound alternatives (solar energy and heating, insulated walls, alternative materials).

DESS24 Environmental Systems II [3-0, 3 cr.]  
This course deals with two subjects: lighting and electrical circuits, and acoustics. The first part addresses the analysis of the basic electric circuits, with emphasis on energy management, electric ratings and capacity, wiring and lighting systems and different lighting equipment, and methods for building electrical systems. The second part is a survey of basic acoustical systems, theories, acoustic properties of different materials used in buildings, and their consequences on noise reduction, as well as a study of the properties of acoustical spaces, such as theaters or concert halls.

DESS31 Design Studio VII [3-4, 5 cr.]  
This course will further address the application of technology in design, through creative detailing of spatial design components, interior furniture, and other fixtures of design, as part of the design process. This studio will focus on the detail as an extension of the theoretical tools of ideation and conceptualization. These investigations, through detailing, will normally involve a particular attention to construction techniques, and a further development of the knowledge of materials and finishes, down to the design of furniture components.  
Prerequisite: DES432 Design Studio VI.

DESS32 Design Studio VIII [3-4, 5 cr.]  
This course synthesizes previously explored aspects of design, this studio will focus on the investigation of important contemporary themes in design. Particular attention will be drawn, in this case, on the simultaneous development of design through contemporary representational media, while also providing an opportunity for students to propose a personal project based on a critical problem which addresses, simultaneously, the various theoretical and technical aspects of the design, within the parameters set for the final project.  
Prerequisite: DES531 Design Studio VII.

DESS83 Internship [0-1, 1 cr.]  
This course is an introduction to the professional practice, with introductory lectures that outline the basics of job search, application, and practical training, to be followed by a documented practical experience (200 work hours) in a professional firm, approved by the Department.

DESS85 Professional Practice* [2-0, 2 cr.]  
This course will introduce the business aspects of the design practice through the exploration of the financial, legal, and managerial aspects, such as contract negotiations, marketing design services and managing client/contractor relationships, with an introduction to economic and management principles of design projects, financing, cost-estimate and budgeting.

* This is an elective course and it may be offered at irregular intervals.
Department of Architecture & Design

Bachelor of Architecture (B.Arch.)

The Architecture curriculum leads to the Professional Degree of Bachelor of Architecture, which allows the students to practice the profession of Architects in its wide range of applications, or to pursue Graduate studies in Architecture, Urban Design, Urban Planning, Landscape Design, Construction Management, or other related fields.

This comprehensive approach begins with a common Foundation Year in which students are introduced to design as a general field, from which they proceed in their specialization. The Program offers a wide exposure to the current issues and problems of theoretical and practical nature, complemented by a number of activities such as international studios, workshops, visiting critics, and exchanges with architecture and design institutes worldwide.

The total number of credits required for graduation with a Bachelor of Architecture Degree is 176 credits, which can be completed in a minimum of five academic years (after the Freshman year), including Summer modules.

Mission

The Mission of the Architecture Program is to give students a comprehensive education, based on the humanistic approach to the discipline. This Program prepares students to assume their role as Architects upon graduation, and/or to pursue Graduate studies in Architecture, and other related fields.

Educational Objectives

The purpose of the Bachelor of Science in Interior Design is to:

- Offer students, who successfully complete their studies, the Profession Degree of Bachelor of Architecture.
- Develop a broad base of theoretical knowledge, and the necessary practical skills.
- Assert the role of the Architect as a synthesizer of the different factors which affect the built environment.
- Expose students to the current issues in theory and practice, and to the latest technology in the field.

Learning Outcomes

Graduates of the Bachelor of Architecture Program will acquire the following skills:

- The ability to practice architecture in various contexts and cultures.
- The capacity for critical thinking, and the ability for problem solving.
- The ability to identify design issues, conduct research, and to provide solutions.
- An understanding of the urban dimension of architecture, and the consequences of building activities on the environment.
- The capacity to deal innovatively with projects of different types, and scales.
- The capacity to elaborate projects with innovative structural systems, detailing, and material.
- The capacity to operate in a multi-disciplinary environment.
- The capacity to serve the community in organizations of both public and private sectors.

MAJOR REQUIREMENTS

First Year (Foundation)

Fall Semester (13 credits)

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Second Year

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General University Requirement** 3

Second Year

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General University Requirement** 3

Third Year

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General University Requirement** 3

Fourth Year

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<tr>
<td>ARC311</td>
<td>Building Systems I</td>
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<td>ARC312</td>
<td>Building Systems II</td>
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<td>General University Requirement** 3</td>
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General University Requirement** 3

General University Requirement** 3

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** General University Requirement
*** Professional Elective
**** Interdisciplinary Elective
***** Professional Elective
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### DEPARTMENT OF ARCHITECTURE & DESIGN

#### FIFTH YEAR

**Fall Semester (9 credits)**
- ARC631 Design Studio IX 5
- ARC601 Final Project Research 1
- ARC584 Building Codes and Laws 1
- **—— Professional Elective*** 2

**Spring Semester (10 credits)**
- ARC632 Design Studio X 5
- **—— Professional Elective*** 2
- **—— General University Requirement** 3

**Art Electives:**
- ART 211 Ceramics I 3
- ART212 Ceramics II 3
- ART22 Drawing II 3
- ART334 Graphics 3
- ART341 Painting I 3
- ART342 Painting II 3
- ART351 Sculpture I 3
- ART352 Sculpture II 3
- COM225 The Art of Film 3
- COM241 Introduction to Acting 3
- COM242 Introduction to the Art of Theater 3
- COM345 Modern Drama 3
- MUS201 Fundamentals of Music 3
- PHO212 Photography II 3

**General University Requirements:**
- **—— Academic Elective** 3


### DEPARTMENT OF ARCHITECTURE & DESIGN

#### MINOR IN ISLAMIC ART ARCHITECTURE AND DESIGN (I.A.A.D)

The Minor in Islamic Art and Architecture, within the Undergraduate Program, adds another layer of knowledge to the education of a student, with a focus on a number of electives, and additional courses, directed towards the investigation of a particular area of interest.

**Required Courses (14 credits)**
- ARC375 Introduction to Islamic Art
- ARC376 Introduction to Islamic Architecture
- ARC405 Design Workshop – IAAD
- ARC435 Design Studio – IAAD
- ARC451 Digital Modeling
- ARC452 Computer Animation
- ARC453 Programming
- ARC461 Topics in Architecture Theory
- ARC471 Contemporary Trends
- ARC472 Classical Art and Architecture
- ARC473 Architecture of the Renaissance
- ARC475 Islamic Architecture in the Age of Empires
- ARC476 Art and Architecture of the Mamluks
- ARC477 Art and Architecture of the Umayyads
- ARC478 The Decorative Arts of Islam
- PKG572 Packaging Dynamics and Permeation
- PKG573 Packaging Types and Processes
- PKG574 Paper and Paperboard Packaging
- PKG575 Corrugated Packaging
- PKG576 Rigid Plastic Packaging
- PKG577 Packaging for Food, Drug and Cosmetics
- PKG578 Food Preservation Packaging
- PKG579 Special Topic Course in Packaging Engineering
- PKG580 Packaging Design
- PKG582 Structural Packaging
- PKG584 Package Branding
- PKG586 Computer Graphics for Packaging
- PKG588 Packaging Applications
- PKG589 Special Topic Course in Packaging Design

**Learning Outcomes**

Graduates of the Minor in Islamic Arts and Architecture Program will acquire the following skills:

- **a.** An understanding of the role, and the breadth, of the arts, in the various Islamic cultures.
- **b.** Basic knowledge of the historic development of Islamic Art and Architecture in the Islamic world, and the major highlights of these developments.
- **c.** Development of basic analytical, and interpretative, skills in examining the Islamic Art traditions, and in formulating contemporary interpretations of these rich traditions.

**Educational Objectives**

The objective of the Minor in Islamic Arts and Architecture is to introduce design students to the rich traditions of Islamic Art and Architecture, and to prepare them to respond better to the challenges of practice in the Islamic world.
DEPARTMENT OF ARCHITECTURE & DESIGN

MINOR IN COMPUTER GRAPHICS

The Minor in Computer Graphics is open to students in the Bachelor of Architecture Program, supplementing their skills in computer aided design programs, with exposure to programming, animation, digital modeling, and digital media in design.

Educational Objectives

The objective of the Minor in Computer Graphics Program is to prepare students to lead in the development and application of information technology tools, for a wide variety of uses in design.

Learning Outcomes

Graduates of the Minor in Computer Graphics Program will acquire the following skills:

a. The ability to use the computer to produce elaborate print, and screen presentations, for the design profession.

b. The ability to use computers to generate a complete set of working drawings for construction.

c. The ability to develop 3D computer generated models, and animations, for the design profession.

d. The ability to use specific software as a means to architectural design problem solving.

Required Courses (20 credits)

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<tr>
<th>Course</th>
<th>Credits</th>
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<tr>
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<td>ARC352 Computer Graphics II</td>
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<td>ARC451 Digital Modeling</td>
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<td>ARC452 Computer Animation</td>
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<td>ARC453 Programming</td>
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<td>GRA302 Advanced Computer Graphics</td>
<td>3</td>
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<tr>
<td>GRA484 Web Design</td>
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Course Descriptions

ARC231 Design Studio I-A [2-2, 3 cr.]
This course emphasizes the visual perception through an initiation into the different modes of representation, and formal analysis of the elements of visual language (line, volume, texture, color, shape). The course will cover the effects of light on forms, which constitutes the basics of two-dimensional studies. Exercises in this module are intended to sharpen and focus the student's perception of forms, and to train the eye and the hand in the process of interpretation and representation of forms.

ARC232 Design Studio I-B [2-2, 3 cr.]
This course is a study of structural characteristics as foundational to an understanding of the manifestation of different forms, natural or artificial. A variety of concepts and processes will be explored with considerable emphasis placed on learning by making, stressing different forms of plastic modeling from wood to metals, and requiring an active use of the workshop. A shop orientation session will be included in this module as a required introduction to the basic tools and safety procedures for using the wood and metal shop.

ARC233 Design Studio II-A [2-2, 3 cr.]
This course will continue the development of visual perception in the two-dimensional field, introducing the principles and techniques of typography, and elaborating projects that involve both traditional and digital media. The studio will also address composition, layout, and presentation as a means of conceptual expression, and communication in design.

ARC234 Design Studio II-B [2-2, 3 cr.]
This course covers the studies and development of three-dimensional forms through exercises that involve formal, and structural, analysis, dissection, assembly, and reconfiguration. Projects in this studio are aimed towards the development of plastic skills and techniques, in various materials (wood, metals, plastics) while developing the students' analytical, artistic, and interpretative faculties.

ARC240 Sketching [1-2, 2 cr.]
This is a general course on sketching, stressing freehand drawing techniques with pencil, charcoal, as well as the basics of watercolor rendering.

ARC241 Technical Graphics I [1-2, 2 cr.]
This course is an introduction to the basics of formal representation, with two-dimensional representation of objects through orthographic projections, and auxiliary drawings, isometric and axonometric drawings, and the basics of shades and shadows. This studio will also introduce the student to the various tools and techniques of technical drawing in pencil and ink.

ARC251 Introduction to Computer Graphics [2-2, 3 cr.]
This course is an introduction to computer graphics, with the basics of generating and manipulating of images using digital media, and covering monochrome patterns, control and mix of colors, raster images, scanning, pixel and vector graphics. The course includes basic exposure to computer platforms, as well as the basic software mainly used for computer graphics applications (Adobe Illustrator, Photoshop, etc.).
This course is an introduction to design in relation to art, photography, film, music, and other cultural manifestations of the 20th Century. This course is a creative presentation of the multiple dimensions and aspects of the design field, through a series of lectures, film screenings, art documentaries, and other events, including guest speakers, to initiate the students into the wider cultural framework of design.

ARC271 History of Design [2-0, 2 cr.]
This course is a survey of the design activity from the 19th Century development of the Arts and Crafts movement, and the subsequent developments of Art Nouveau and Art Deco, Bauhaus, and the development of international and regional design trends in Italy, Scandinavia, and Japan, down to the more recent contemporary trends. This course will explore the various manifestations of these artistic developments in the Applied Arts from spatial design to furniture to various products design, and their relationship to the aesthetic ideas behind these movements.

ARC311 Building Systems I [3-0, 3 cr.]
This course is an introductory course to the basic laws of equilibrium, covering forces on particles, bodies, and structures or assemblage of elements, simple algebraic applications of the equations of equilibrium in 1-D and 2-D with free body diagram analysis. The course will include experimental investigation of the stability of structures (solid object, beams, frames, trusses, simple buildings) and the different ways to support gravity, and other loads, by vertical transfer and lateral transfer of forces. It will also include an introduction to the concept of compressive and tensile uniaxial stresses in structural members and to internal forces in beams, shear and moment diagram concepts, with empirical investigation of beam bending.
Prerequisite: MTH102 Calculus II, and PHY111 Mechanics.

ARC312 Building Systems II [3-0, 3 cr.]
This course is an introduction of the basic concepts of internal stresses and strains inside structural members, solid bodies, and the limit states for strength and deformation. Experimental investigation of the different types of stresses, and the resulting deformations, are covered. This course will also make use of computer software to model internal and external behavior of structural elements, and assemblages of structural elements. It will serve to develop a physical understanding of the interrelationship of material properties, structural dimensions, and structural behavior, and safety through the numerical simulation of the behavior of typical designs using simple computer packages.
Prerequisites: MTH102 Calculus II, and PHY111 Mechanics.

ARC331 Design Studio III [3-6, 6 cr.]
This course builds upon, and extends, the theoretical knowledge gained in the foundation studios, through a concrete application of conceptual and perceptual analysis to problems of small and medium scale in design, and the exploration of the limits, and means, of developing concepts into architectural form. The studio will emphasize on the development of representational tools in translating ideas into architectural drawings and models, specifically stressing on the importance of drawing as a design tool.
Prerequisites: ARC231 Design Studio I-A, ARC232 Design Studio I-B, ARC233 Design Studio II-A, and ARC234 Design Studio II-B.

ARC332 Design Studio IV [3-6, 6 cr.]
This course further elaborates the process of theoretical investigation of space, with emphasis on the communication of ideas through different representational models and tools. The course covers the study of small to medium scale projects, with emphasis on the basic principles of spatial design. References and case studies of canonical works in modern design may serve as a theoretical background in the continuing development of a theoretical foundation. The elaboration of a complete set of architectural drawings for the final design (plans/sections/elevations), in addition to the models, will be expected at this stage.
Prerequisite: ARC331 Design Studio III.

ARC341 Technical Graphics I [2-2, 3 cr.]
This course covers the specific application of technical drawings to architectural plans, sections, and elevations, with two-dimensional and three-dimensional representations, axonometric, perspective, shades and shadows, applied to two-dimensional, three-dimensional, and perspective drawings.
Prerequisite: ARC241 Technical Graphics I.

ARC342 Technical Graphics II [2-2, 3 cr.]
This course covers the translation of the technical drawings of canonical projects into three-dimensional architectural models, with different materials and techniques, and the development of the full set of corresponding architectural drawings (plans, sections, and elevations) at appropriate scales.
Prerequisite: ARC341 Technical Graphics II.

ARC351 Computer Graphics I [1-2, 2 cr.]
This course specifically addresses the architectural applications in computer graphics, for drafting of architectural plans, sections, elevations, and details.
Prerequisite: ARC251 Introduction to Computer Graphics.

ARC352 Computer Graphics II [1-2, 2 cr.]
This course expands on the skills learned to cover new applications for surface and solid modeling, as well as rendering material library, applications of light, leading to the development of complete project renderings.
Prerequisite: ARC351 Computer Graphics I.

ARC361 Theory I [2-0, 2 cr.]
This course introduces the major aesthetic theories in the field of design, with an investigation of the relations between these theories and physical space in its aesthetic, social, and cultural significance, examining the ideological frameworks behind paradigmatic changes and movements in aesthetics, and their effects on the field of design.

ARC363 Theory II [2-0, 2 cr.]
This course examines, in depth, the ideologies behind modern and post-modern culture, and the influence of the contemporary theories on the architectural and design cultures, with a thematic approach that deals with the specific aspects of contemporary practice.
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ARC371 History of Architecture I [3-0, 3 cr.]
This course will trace the development of Western architecture from the Greek and Roman period to the Byzantine, Gothic, and Italian Renaissance, Late Renaissance, and Baroque, with the analysis of important icons and landmarks in art and architecture, and the principles, technical developments, and ideologies underlying these various movements. The course will also study the importance of cultural ideas, and ideals, and their relation to the development of aesthetic forms, in particular, and civilization, in general.

ARC372 History of Architecture II [2-0, 2 cr.]
This course will trace the developments in architecture from Neo-Classicism, in the 18th and 19th Centuries, to the full development of Modern architecture in the 20th Century; examining the seminal projects and buildings that characterized these developments, and their subsequent transformations in Post-Modernism, Deconstruction, and later trends.

ARC373 History of Landscape Design [2-0, 2 cr.]
This course is an overview of the historical developments of landscape design, with a survey of the ideas, principles, and practical considerations, behind the major landscape design cases under study, from the classical to the modern period.

ARC375 Introduction to Islamic Art (650 - 1650)* [3-0, 3 cr.]
This course is an introductory course to the arts of the Muslim world from the rise of Islam, until the advent of the early modern period. This course will comprise a selective survey of artifacts drawn from a variety of media, which represent the pinnacles of artistic accomplishment across the vast expanse of the Islamic world. Paintings, textiles, coins, ceramics, metal work, jewelry, and woodcarving, will be investigated in the context of cultural history, and examined in terms of their evolving forms, multiple meanings, and the development of a distinctively Islamic aesthetic. Particular emphasis will be placed on the spiritual content of Islamic art, the role of the artist in Islamic society, and the effect of religious pronouncements on the production of art.

ARC376 Introduction to Islamic Architecture (650 – 1650) [3-0, 3 cr.]
This course is a survey of the architectural heritage of the Islamic world from the early Caliphate, to the era of the Muslim superpowers of the pre-modern times. It traces the most significant, and influential, edifices of the Muslim world from Spain, in the West, to India, in the East. Monuments will be studied and analyzed in their political, religious, socio-economic, cultural, and aesthetic contexts. The course will also examine the evolution of such varied building types as mosques, madrassas, mausoleums, caravanserais, and palaces. Selected structures will be studied through a range of methodologies, and the development of Islamic architecture will be analyzed from the standpoint of the manipulation of space, materials, and building technology.

ARC381 Architectural Photography [1-2, 2 cr.]
This course is an advanced photography course emphasizing specific photographic techniques, and lighting and composition, dealing with architectural and design subjects. 
Prerequisite: PHO211 Photography I.

* This is an elective course and it may be offered at irregular intervals

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ARC405 Design Workshop - IAAD* [0-2, 1 cr.]
This workshop will revolve around an intensive thematic investigation, consisting of a seminar combined with design application, addressing a design problem of current importance, such as a competition for a mosque or madrassa, or the restoration of a historic structure in the Islamic world.
Prerequisite: ARC332 Design Studio IV.

ARC404 Landscape Design Workshop [1-2, 2 cr.]
This course is an elaboration of an actual landscape design project or competition, either within the format of a regular term project, or as a series of intensive workshops.

ARC411 Building Systems III [3-0, 3 cr.]
This course is an introduction to the different soil-structural systems, and the different ways they impact architectural design, in addition to the analysis of the properties of different structural systems. Discussion of the interaction between building envelopes and structural systems, and the introduction of the current and applicable engineering structural models, will be covered.
Prerequisite: ARC312 Building Systems II.

ARC412 Building Systems IV [3-0, 3 cr.]
This course covers the selection of specific applications for the design of structural systems, in conjunction with architectural design projects, or as applicable to a real life situation. Comparison between computer/empirical simulation for design and code compliance, as well as the selection of one structural system (Concrete/ACI, Steel/AISC, or other) for detailed design, are covered.
Prerequisite: ARC312 Building Systems II.

ARC421 Building Technology I [2-0, 2 cr.]
This course is an overview of the major components of a building, (foundation, walls, openings, roof floors) and their interrelation through construction. Analysis of the different construction elements (structure, bearing walls, envelope, components) with their variation in materials, in addition to the study of the different techniques used for the insulation of buildings, are covered.

ARC422 Building Technology II [2-0, 2 cr.]
This course is an analysis of the traditional construction systems, such as concrete, brick and wood construction, and their various properties. Focus on the specific characteristic of each system, and its compatibility with other materials, its physical treatment, as well as the different possibilities of its finishing, weathering and maintenance, are covered.

ARC431 Design Studio V [3-6, 6 cr.]
This studio will deal with projects that examine problems of different structures and materials, and focus on building technology, building program, environmental and site factors as essential parameters in the development and resolution of a design project. The studio will be given in correlation with the Building Technology courses in order to reinforce the relationship of conceptual design to materials and construction techniques, and as a means to give concrete form to design projects.
Prerequisite: ARC332 Design Studio IV.
DEPARTMENT OF ARCHITECTURE & DESIGN

ARC432 Design Studio VI [3-6, 6 cr.]
This course involves the development of projects of greater complexity in terms of functional and programmatic constraints, with specific attention to the structural dimension in design, according to the different technologies and building systems projected. This studio will address technical and construction details, and will explore the architectural detail as an essential element in the design process.
Prerequisite: ARC431 Design Studio V

ARC435 Design Studio – MIAA* [2-4, 4 cr.]
This course investigates projects pertaining to contemporary design issues in the Islamic world, for example the design of religious centers, housing, schools, cultural compounds, libraries, etc., with specific focus on the issues of context, cultural setting, and climate. The design will be studied in terms of functional and programmatic constraints, and in relationship to cultural considerations. Students will be encouraged to develop their ideas by critically assessing the applicability of traditional Islamic design paradigms to contemporary design problems. The studio will be further enriched through discussions, and critique, of contemporary design in the Islamic world.
Prerequisite: ARC332 Design Studio IV

ARC451 Digital Modeling* [2-2, 3 cr.]
This course is an introduction to 3-D digital modeling, as related to design issues and applications, enabling students to explore new tools for design.
Prerequisite: ARC352 Computer Graphics II

ARC452 Computer Animation [1-2, 2 cr.]
This course is an introduction to the basics of computerized representations of space, using walkthrough and animation techniques.
Prerequisite: ARC352 Computer Graphics II

ARC453 Programming* [2-0, 2 cr.]
This course is an introduction to programming. It covers an overview of the microcomputer components. Methodologies for problem solving, algorithm designs, and data structures, will be covered.
Prerequisite: ARC352 Computer Graphics II

ARC461 Topics in Architecture Theory* [2-0, 2 cr.]
This course will address the architectural theories with a focus on the specific themes of contemporary relevance, and importance. The course will be run as an advanced theory seminar.
Prerequisite: ARC363 Theory II

ARC471 Contemporary Trends [2-0, 2 cr.]
This course is a study of the important design projects, with analysis of their aesthetic concepts and structural innovations, focusing on particular themes, and/or movements, in contemporary design.

 ARC472 Classical Art and Architecture* [2-0, 2 cr.]
This course is a thorough investigation of the classical art and architecture of the Greek and Roman periods, with specific studies of important artistic and architectural works. The course highlights the theoretical dimensions of these works, and their role within the cultural history of the periods in which they were created.
Prerequisite: ARC376 Introduction to Islamic Architecture.

ARC473 Architecture of the Renaissance* [2-0, 2 cr.]
This course is a thorough investigation of the art and architecture of the Italian Renaissance and the Late Renaissance, with specific studies of important artistic and architectural works, and the theoretical framework of these works, as well as their role within the cultural history of the periods in which they were created. The course also covers the consequences and developments of these works on the broader European context.

ARC475 Islamic Architecture in the Age of Empires* [2-0, 2 cr.]
This course surveys the development of Islamic architecture under the most powerful Islamic empires of the early modern period, namely the Ottomans of Turkey, the Mughals of India, and the Safavids of Iran. It reviews, and analyzes, a number of paradigmatic architectural examples from these illustrious Islamic dynasties, as a way of elucidating how each royal house possessed its unique vision of the world, a vision which ultimately led to the formulation of unique regional styles in architecture. Sacred, commemorative, and secular monuments will be closely examined, so as to illustrate how royal Muslim patronage evolved, how it produced structures of unprecedented scale and complexity, and how Islam and modernity began evolved.
Prerequisite: ARC376 Introduction to Islamic Architecture.

ARC476 Art and Architecture of the Mamluks* [2-0, 2 cr.]
This course offers a close examination of the visual art of the Mamluks from the 13th Century, until the beginning of the 16th Century. It will discuss, and analyze, the distinctive design vocabulary of the Mamluks, and trace its stylistic development across time and space. Cities, landmarks, and artifacts will be studied in their cultural, political, socio-economic, and aesthetic, contexts and evaluated in terms of courtly aspirations, and the sources of design inspiration. Furthermore, the course will employ a range of methodologies and will explore a variety of themes including patronage, power, courtly taste, and the role of Waqf.
Prerequisite: ARC376 Introduction to Islamic Architecture.

ARC477 Art and Architecture of the Umayyad* [2-0, 2 cr.]
This course offers an in-depth investigation of the material heritage of the Umayyad dynasty in Syria in the 17th and 18th Centuries. Monuments and artifacts will be examined in terms of their purpose and meaning, and will be interpreted in the context of cultural history. Particular attention will be afforded to the issue of the formation of Islamic art, and to the discernment of what can be regarded as “Islamic” in the visual art forms of Islam. This will involve exploring cross-cultural dialogues in the Levant in the 1st Century of Islam, and the attempt to blend the elements from West and East in the framework of the new faith.
Prerequisite: ARC376 Introduction to Islamic Architecture.

* This is an elective course and it may be offered at irregular intervals.
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ARC478 The Decorative Arts of Islam (650–1650)* [2-0, 2 cr.]
This course is a survey of the salient examples of decorative arts of Medieval Islam. Arts of the Book, calligraphy, metalwork, ceramics, textiles, ivory, and woodcarving will be explored within their religious, political, and socio-economic context, as well as in terms of meaning, function, aesthetics and emerging forms. Particular emphasis will be given to the regional design vocabulary, and to the evolution of style, content, and iconography. The course will also investigate the pivotal role of geometry, vegetable ornaments, and epigraphy in Islamic design, and the supremacy of color and pattern.
Prerequisite: ARC375 Introduction to Islamic Art.

ARC481 Construction Documents [1-6, 4 cr.]
This course entails a preparation of a full set of architectural working drawings, for the execution of a mid-size building or project. The course will also cover the basics of preparing a specifications’ document.
Prerequisites: ARC Introduction to Islamic Architecture, and ARC432 Design Studio VI.

ARC482 Regional Architecture I [2-0, 2 cr.]
This course covers the analytical and historical survey of the regional architectural heritage, with a specific focus on the traditional domestic architecture of Lebanon, and the analysis of setting and building techniques, as well as other factors, on the development of regional architecture in the 19th and 20th Centuries.
Prerequisite: ARC332 Design Studio IV.

ARC483 Regional Architecture II* [2-2, 3 cr.]
This course covers an on-site application of the study of the regional architectural heritage, with case studies, analysis, and documentation of particular landmarks, religious structures, and domestic houses.
Prerequisite: ARC332 Design Studio IV.

ARC484 Regional Urbanism [2-2, 3 cr.]
This course entails students preparing a case study of a regional town, supported by a field survey of the urban structure, and its historical development, as well as an investigation of the role of climate, topography, typology, building technology, and other factors, in the development of its urban plan and morphology.
Prerequisite: ARC332 Design Studio IV.

ARC501 Design Workshop I [0-2, 1 cr.]
This course is a workshop, in conjunction with Design Studio VII, to introduce new computer modeling and rendering techniques, and/or to explore the new technologies in structural, and environmental, design.
Prerequisite: ARC432 Design Studio VI.

ARC502 Design Workshop II [0-2, 1 cr.]
This course is a workshop in the design topics that offer exposure to the practice of architecture in other contexts, revolving around specific and intensive design exercises, as a supplement to Design Studio VIII.
Prerequisite: ARC432 Design Studio VI.

* This is an elective course and it may be offered at irregular intervals.

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ARC521 Building Technology III [2-0, 2 cr.]
This course deals with the detailing in design, and the role of the detail in the generation of design, from brick to wood and steel detailing, with actual drawings, and/or actual construction exercises, at 1:1 or 1:2 scale, of wall sections in different materials, as well as in fixture details, windows, and other architectural components.

ARC522 Building Technology IV [2-0, 2 cr.]
This course covers an analysis of the high-tech construction systems such as steel and glass, as well as new systems and materials of construction, and their various properties and technical advantages. The course will focus on the specific characteristic of each system/material, and its compatibility with other materials, its physical treatment, as well as the different possibilities of its finishing, weathering and maintenance.

ARC523 Environmental Systems I [3-0, 3 cr.]
This course covers the study and design of plumbing systems, in addition to heating, ventilation, and air-conditioning systems, with a survey of the different systems and their properties, cost analysis, and environmental factors, including a survey of environmentally sound alternatives (solar energy and heating, insulated walls, alternative materials).

ARC524 Environmental Systems II [3-0, 3 cr.]
This course deals with two subjects: lighting and electrical circuits, and acoustics. The first part addresses the analysis of the basic electric circuits, with emphasis on energy management, electric ratings and capacity, wiring and lighting systems and different lighting equipment, and the methods for building electrical systems. The second part is a survey of the basic acoustical systems, theories, the acoustic properties of different materials used in buildings and their consequences on noise reduction, as well as a study of the properties of acoustical spaces, such as theaters or concert halls.

ARC531 Design Studio VII [3-4, 5 cr.]
This course is an elaboration of projects, with continuing emphasis on technical, structural, and environmental parameters in design. This is covered through the investigation of complex building types, stressing the necessity of adapting computer-aided means, as a design tool, in the early phases of the design process, namely from the analysis to design production. The studio will also investigate the emerging technologies in environmental systems as a means to making new buildings responsive to environmental issues.
Prerequisite: ARC432 Design Studio VI.

ARC532 Design Studio VIII [3-4, 5 cr.]
This studio will be open to new issues in design, through projects that address contemporary design problems, and/or use state of the art media in the process of design production, and representation. Projects that deal with complex urban issues, and/or competitions, are encouraged at this stage.
Prerequisite: ARC531 Design Studio VII.

ARC551 Computer Graphics Studio [1-4, 3 cr.]
This course is an investigation of design problems through the use of computer graphics, from the initial stages of design conceptualization to the design development, visualizing a new approach to the different issues of computer-aided design.
Prerequisites: ARC451 Digital Modeling, and ARC452 Computer Animation.
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ARC561 Seminar [2-0, 2 cr.]
This course involves a series of lectures, and/or presentations, that focus discussions around ideas, theories, and projects that influenced classical, modern, or contemporary developments in architecture.
Prerequisite: ARC432 Design Studio VI.

ARC581 Urban Planning I [3-0, 3 cr.]
This course is a survey of the city as a historical development, in relation with economic, social, and political factors, from the early settlements to the development of contemporary urbanism. It involves a broad overview of the current planning theories, from the context of modernist ideals, to the social studies of planners, and sociologists.
Prerequisite: ARC432 Design Studio VI.

ARC582 Urban Planning II* [2-0, 2 cr.]
This course is a study of the actual planning processes, issues, and problems, urban and regional zoning, demographical projections, with comparative studies of regional, or international, planning cases.
Prerequisite: ARC581 Urban Planning I.

ARC583 Internship [0-0, 1 cr.]
This course is an introduction to the professional practice, with introductory lectures that outline the basics of job search, application, and practical training. The course involves a documented practical experience (200 work hours) in a professional firm, approved by the Department.
Prerequisite: ARC432 Design Studio VI.

ARC584 Building Codes and Laws [1-0, 1 cr.]
This course is a study of the local and regional building codes, with an introduction to other codes (USA, Europe, Arab World) as comparative tools, and an introduction to the local laws governing the building industry.

ARC585 Professional Practice* [2-0, 2 cr.]
This course will introduce the business aspects of the design practice, through the exploration of the financial, legal, and managerial aspects, contract negotiations, marketing design services, and managing of the client and contractor relationships, with an introduction to the economic and management principles of design projects, financing, cost-estimate, and budgeting.

ARC591 International Studio [1-4, 3 cr.]
This course involves a study abroad, covering the specific works of the classical or modern architecture, supported by a preparatory series of lectures/presentations on the subject of study. Students will be required to analyze, and to document, specific works, as well as to study their relationship to the urban history and culture of the area. This will then be documented and presented in a portfolio.
Prerequisite: ARC432 Design Studio VI.

* This is an elective course and it may be offered at irregular intervals.

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ARC595 International Studio – IAAD [1-4, 3 cr.]
This studio offers an opportunity for the students to experience, first hand, the wealth and breadth of the material heritage of the Arab and Islamic worlds. The knowledge acquired, through the design history and theory courses, will be complemented by field trips, and site visits, that offer direct exposure to, and immediate engagement with, the architectural heritage of a particular region in the Islamic world, or an area with substantial Islamic heritage outside of the Islamic world. Students will be required to analyze, and to document, specific works, and study their relationship with the urban history and culture of the area. This will then be documented and presented in a portfolio.
Prerequisite: ARC432 Design Studio VI.

ARC592 International Workshop* [1-2, 3 cr.]
This course is a workshop abroad, at a host school, revolving around specific, and intensive, architectural and urban design projects.
Prerequisite: ARC432 Design Studio VI.

ARC601 Final Project Research [0-2, 1 cr.]
This course is a research, supervised by the selected advisor, for the final project studio, with the elaboration and definition of a thesis proposal, including a detailed program and site analysis, as well as the documentation of any other relevant research material.
Prerequisite: ARC532 Design Studio VIII.

ARC631 Design Studio IX [3-4, 5 cr.]
This studio will concentrate on a design problem addressing the urban dimension in architecture. Projects in this studio will analyze problems of practical relevance to contemporary urban settings, with an investigation of the social and ideological aspects of the urban design process. Projects in this studio will deal with a comprehensive study of a city, or a section of a large city, as a prelude to the development of a final project, and as an elaboration to the studies developed in this studio.
Prerequisite: ARC532 Design Studio VIII.

ARC632 Design Studio X [3-4, 5 cr.]
The final studio in this sequence is an opportunity for students to develop an individual project, through the formulation of a critical problem, simultaneously addressing the various factors in the design process, leading to a synthesis that demonstrates a thorough understanding, and resolution, of the different issues analyzed in the design of a building, from the understanding of context, to structural and environmental systems, down to the details of construction.
Prerequisites: ARC601 Final Project Research, and ARC631 Design Studio IX.
DEPARTMENT OF CIVIL ENGINEERING

The Department of Civil Engineering offers the following degree programs:

UNDERGRADUATE PROGRAMS

Bachelor of Engineering (B.E.) in Civil Engineering.

GRADUATE PROGRAMS

Master of Science (M.S.) in Civil and Environmental Engineering.

UNDERGRADUATE PROGRAMS

BACHELOR OF ENGINEERING IN CIVIL ENGINEERING

The Civil Engineering Department aims at providing a well-rounded and superior engineering education that graduates talented and creative engineers. It draws upon the broad resources of the comprehensive University that has strong programs in liberal arts education and sciences. It offers, also, a wide range of professional programs, aspiring to be among the top universities in the country, and the region. The Civil Engineering Department aims at providing its graduates with a solid theoretical background, training in the latest design methods, and proficiency in technological applications. Graduates go on to pursue varied careers in design, construction, management, and research.

The Civil Engineering Department currently offers courses in the fields of structures and materials, water and environment, geotechnical, transportation, and management. Graduates are prepared to work effectively in today’s work environment by being technically competent, critical and reflective thinkers, and abreast of the latest technical software.

The total number of credits required for graduation is 154. This includes six technical elective courses, and seven courses with a separate industry standard software laboratory. The elective courses allow the students to choose the emphasis, depending on their own interests, and the current market needs. The software courses enhance the learning experience, as well as improve the marketability of the graduates. A typical schedule, over a four year period, including Summer modules, is listed below. Students may elect to take these courses over a longer period of time.

Mission

The Mission of the Civil Engineering Department is to provide all students with a quality and challenging education, through innovative teaching, applied research, professional practice, and community service, enabling the students to enrich their lives, and to make valuable contributions to their communities.

Educational Objectives

The objectives of the Civil Engineering Program are to graduate students who are:

a. Broadly educated, and technically competent.

b. Able to work effectively in today’s work environment.

c. Able to communicate effectively.

d. Able to identify analysis and synthesis aspects of civil engineering theory and design, while accommodating all the dimensions of the project environment.

Learning Outcomes

Graduates of the Civil Engineering Program will acquire the following skills: (ABET Criteria a-k):

a. The ability to apply knowledge of mathematics, science, and engineering.

b. The ability to design and conduct experiments, as well as to analyze and interpret data.

c. The ability to design a system, component, or process, to meet the desired needs, within realistic constraints, such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

d. The ability to function on multi-disciplinary teams.

e. The ability to identify, to formulate, and to solve, engineering problems.

f. An understanding of one’s professional and ethical responsibility.

g. The ability to communicate effectively.

h. The acquisition of a broad education that is necessary to understand the impact of engineering solutions in a global, economic, environmental, and social context.

i. Recognition of the need, and the ability, to engage in life-long learning.

j. Knowledge of contemporary issues.

k. The ability to use the techniques, the skills, and the modern engineering tools that are necessary for the engineering practice.

MAJOR REQUIREMENTS

FIRST YEAR

Fall Semester (17 credits)

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<tr>
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<td>CHM201</td>
<td>Chemical Principles</td>
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Spring Semester (17 credits)

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SECOND YEAR

Fall Semester (15 credits)

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<td>CIE302</td>
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<td>MTH304</td>
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Spring Semester (15 credits)

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Summer Module I (6 credits)

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Summer Module I (6 credits)

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Summer Module II (6 credits)

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Summer Module II (6 credits)

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### DEPARTMENT OF CIVIL ENGINEERING

#### THIRD YEAR

**Fall Semester (15 credits)**
- INE320 Engineering Economy I 3
- CIE444 Soil Mechanics 3
- CIE445 Soil Mechanics – LAB 1
- CIE424 Environmental Engineering I 3
- CIE425 Environmental Engineering I - LAB 1
- CIE460 Transportation Engineering I 3
- CIE461 Transportation Engineering I - SOFT 1

**Spring Semester (16 credits)**
- MEE401 Energy Systems 2
- GNE331 Probability and Statistics 3
- CIE426 Environmental Engineering II 3
- CIE427 Environmental Engineering II – SOFT 1
- CIE446 Foundation Engineering 3
- CIE447 Geotechnical Engineering – SOFT 1
- CIE400 Steel Structures 3

**Summer Module II (6 credits)**
- CIE498 Professional Experience 6

#### FOURTH YEAR

**Fall Semester (15 credits)**
- CIE601 Project I 3
- INE402 Optimization 3
- CIE — Technical Elective 3
- CIE — Technical Elective 3
- CIE — Technical Elective 3

**Spring Semester (16 credits)**
- CIE — Technical Elective 3
- CIE — Technical Elective 3
- CIE — Technical Elective 3
- CIE580 Construction Management 3
- CIE581 Construction Management – SOFT 1
- Liberal Arts Curriculum Elective 3

#### TECHNICAL ELECTIVES

- CIE500 Advanced Mechanics of Materials 3
- CIE510 Finite Element Method I 3
- CIE511 Structural Analysis II 3
- CIE512 Concrete Structures II 3
- CIE520 Solid Waste Management 3
- CIE521 Hydrology 3
- CIE560 Transportation Engineering II 3
- CIE582 Infrastructure Management 3
- CIE583 Packaging Engineering 3
- CIE584 Quality Management Systems 3
- CIE585 Risk and Natural Hazard Management 3
- CIE600 Topics in Civil Engineering 3
- CIE602 Project II 3

*Any other technically related course approved by the Department.*

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### DEPARTMENT OF CIVIL ENGINEERING

#### COURSE DESCRIPTIONS

**CIE200 Statics [3-0, 3 cr.]**
This course covers the review of vector algebra, forces, moments and couples, as well as free body diagram, equations of equilibrium, application to particles, beams, trusses and frames, shear and moment diagrams for beams, center of gravity, and moment of inertia.

*Prerequisite: Sophomore standing.*

**CIE202 Mechanics of Materials [3-0, 3 cr.]**
This course covers the review of free-body diagrams and equilibrium principles, the types of stress and linear stress-strain relationships, axial, shear, torsion, and bending deformations, shear force and bending moment diagrams, as well as deflection of beams.

*Prerequisite: CIE200 Statics.*

**CIE302 Structural Analysis I [3-0, 3 cr.]**
This course covers the classification of statically determinate and indeterminate structures, the analysis of statically determinate frames, axial force, shear force and bending moment diagrams, influence lines, and deflections using the principle of virtual work.

*Prerequisite: CIE200 Mechanics of Materials.*

**CIE303 Structural Analysis I - SOFT [0-2, 1 cr.]**
This course covers structural analysis using commercial software. Computational model for trusses and frames: load cases, supports, linear static analysis. Results visualizations and assessment: axial force, shear force and bending moment diagrams, as well as deformed shapes.

*Co-requisite: CIE302 Structural Analysis I.*

**CIE304 Stress Analysis [3-0, 3 cr.]**
This course covers stress-strain formulations in 1-D, 2-D, and 3-D, stress-strain based failure criteria for materials, design and analysis of pressure vessels, elastic stability and simple buckling problems of plates and shells, introduction to linear elastic fracture mechanics, and concepts and integrated design.

*Prerequisite: CIE202 Mechanics of Materials.*

**CIE305 Stress Analysis - LAB [0-3, 1 cr.]**
This course is a laboratory demonstration of stress analysis concepts including stress and strain measurements, failure of materials, elastic stability, and fracture mechanics.

*Co-requisite: CIE304 Stress Analysis.*

**CIE306 Concrete Structures I [3-0, 3 cr.]**
This course covers the reinforced concrete behavior and design approach, the design of beams, one-way slabs, T-beams, doubly reinforced beams, including the development length, and splicing, of reinforcing steel bars.

*Prerequisite: CIE302 Structural Analysis I, and CIE308 Construction Materials.*

**CIE307 Concrete Structures I - SOFT [0-2, 1 cr.]**
This course covers concrete design using commercial software, as well as the results visualization, and assessment, for beams, slabs, columns and footings: concrete section, reinforcement, development length, and reinforcement layout.

*Co-requisite: CIE306 Concrete Structures I.*
DEPARTMENT OF CIVIL ENGINEERING

CIE308 Construction Materials [3-0, 3 cr.]
This course covers the general considerations on the use of materials in construction, required properties, selection, testing, design, and quality control of materials, with emphasis on ordinary Portland cement concrete, asphalt concrete, masonry, steel, and wood. The course is also an overview of composites, and other materials in civil engineering.
Prerequisite: CIE202 Mechanics of Materials.

CIE309 Construction Materials - LAB [0-3, 1 cr.]
This course is a laboratory demonstration of materials’ testing, and evaluation methods, with emphasis on aggregate, concrete, and steel reinforcement testing.
Co-requisite: CIE308 Construction Materials.

CIE320 Fluid Mechanics - LAB [0-3, 1 cr.]
This course covers the properties of fluids, hydrostatics and kine-matics, basic equations and conservation laws, Reynolds Transport Theorem, viscous flow and shear forces, steady pipe flow, laminar and turbulent pipe flows, dimensional analysis, and introduction to open channel flow.
Prerequisite: MEE241 Dynamics.

CIE321 Fluid Mechanics [3-0, 3 cr.]
This course covers the properties of fluids, hydrostatics and kine-matics, basic equations and conservation laws, Reynolds Transport Theorem, viscous flow and shear forces, steady pipe flow, laminar and turbulent pipe flows, dimensional analysis, and introduction to open channel flow.
Prerequisite: CIE320 Fluid Mechanics.

CIE322 Hydraulics [3-0, 3 cr.]
This course covers the governing equations, the design of water supply and distribution systems, the flow in pipes and the flow regimes, the methods of flow measurements, open channel flow with backwater computations, hydraulic machinery, an introduction to river engineering, sediment transport, and pollutant dispersion.
Prerequisite: CIE320 Fluid Mechanics.

CIE323 Hydraulics - SOFT [0-2, 1 cr.]
This course covers the analysis and design, using commercially available software: distribution networks including pipes, reservoirs, pumps and losses, and using results visualizations and assessment: pressure, velocity, head losses.
Co-requisite: CIE322 Hydraulics.

CIE360 Surveying [2-3, 3 cr.]
This course covers the basic measuring procedures for distances, elevations, and angles. It also covers leveling, and mapping, construction and topographic surveys, traverses, subdivision of land, cut and fill, and road surveys which include horizontal and vertical curves and views.
Prerequisite: MEE220 Engineering Graphics.

CIE400 Steel Structures [3-0, 3 cr.]
This course is an introduction to the Load Resistance Factored Design (LRFD) philosophy. The course discusses the behavior and design of steel structures, the design of tension members, simple connections, compression members, laterally supported beams, beams under torsion, and beams under lateral torsional loading.
Prerequisite: CIE302 Structural Analysis I, and CIE304 Stress Analysis.

CIE424 Environmental Engineering I [3-0, 3 cr.]
This course covers the water quality, water quantity, population estimation, use factors, fire demand, design periods, standards, system maintenance, and water treatment techniques: purpose, sedimentation, hindered settling, scour; coagulation/flocculation processes, basin design, filtration, disinfection, and advanced chemical treatment.
Prerequisite: CIE322 Hydraulics.

CIE425 Environmental Engineering I – LAB [0-3, 1 cr.]
This course covers the fundamental quantities, titration, primary standards, colorimetric and chromatographic analysis, organic matter determination, microorganism identification and enumeration, toxicity elements, contaminants, physical, chemical, and biological wastewater characteristics, and data analysis.
Prerequisite: CMM201 Chemical Principles and Co-requisite: CIE424 Environmental Engineering I.

CIE426 Environmental Engineering II [3-0, 3 cr.]
This course covers the design of sanitary and storm sewers and related appurtenances, the sources and characteristics of wastewater, the fluctuation of flow, the design periods and requirements, variability, guidelines and standards, and treatment systems including preliminary, primary, secondary and tertiary.
Prerequisite: CIE424 Environmental Engineering I.

CIE427 Environmental Engineering II – SOFT [0-2, 1 cr.]
This course covers the analysis and design using commercially available software of wastewater treatment plant, sizing of tanks, and effluent concentration. It also covers the results visualizations and assessment: cost analysis, and the operation and maintenance.
Co-requisite: CIE426 Environmental Engineering II.

CIE444 Soil Mechanics [3-0, 3 cr.]
This course is an introduction to soil mechanics including: formation and types of soils, field testing and classification, mechanical properties and failure criteria, laboratory testing and triaxial stress strain relationships, and theory of consolidation.
Prerequisite: CIE202 Mechanics of Materials.

CIE445 Soil Mechanics – LAB [0-3, 1 cr.]
This course is a laboratory course which covers the testing for properties and characteristics of soils including: classification tests, strength measurement tests, and hydraulic conductivity and consolidation.
Co-requisite: CIE444 Soil Mechanics.
CIE446 Foundation Engineering [3-0, 3 cr.]
This course is an introduction to the elastic and plastic theories of foundations, as well as to the behavior and design of shallow foundations, and the behavior and design of lateral earth retaining structures. It also covers deep foundations design and case studies.
Prerequisite: CIE444 Soil Mechanics.

CIE447 Geotechnical Engineering – SOFT [0-2, 1 cr.]
This course covers the geotechnical analysis and design, using commercial software, including the design of foundations and lateral earth retaining systems. It also covers results visualizations and assessment.
Co-requisite: CIE446 Foundation Engineering.

CIE460 Transportation Engineering I [3-0, 3 cr.]
This course covers the planning, design, and operation of transportation systems. It also covers the theory and practice in geometric highway design, including horizontal and vertical curves, and the design of traffic elements, volume counts, capacity analysis, intersections, and interchanges.
Prerequisite: CIE360 Surveying.

CIE461 Transportation Engineering I - SOFT [0-2, 1 cr.]
This course covers the design of highways using commercial software, through integrating planning, geometric design, traffic modeling, and GIS systems. It also covers the results visualizations and assessment.
Co-requisite: CIE460 Transportation Engineering I.

CIE498 Professional Experience [0-6, 6 cr.]
This course covers the professional experience, through training in the execution of real-life engineering projects.
Prerequisite: CIE306 Concrete Structures I, CIE400 Steel Structures, CIE426 Environmental Engineering II, CIE446 Foundation Engineering, and CIE461 Transportation Engineering I - SOFT.

CIE500 Advanced Mechanics of Materials* [3-0, 3 cr.]
This course covers stress-strain relationships, strain energy failure theories, curved beams, unsymmetrical bending, shear center, torsion of noncircular sections, energy principles, Castigliano’s Theorem, and inelastic behavior.
Prerequisite: CIE202 Mechanics of Materials.

CIE510 Finite Element Method I [3-0, 3 cr.]
This course covers the stress analysis of solids, such as the shape function, displacement interpolation, linear constitutive relations, element stiffness-matrix, direct stiffness method, assessment of model adequacy, error estimation. It also covers the stress analysis using commercial software.
Prerequisite: CIE202 Mechanics of Materials.

CIE511 Structural Analysis II* [3-0, 3 cr.]
This course covers the analysis of statically indeterminate structures which include the flexibility method, the slope-deflection method, and the direct-stiffness method. The course also covers the structural analysis of indeterminate frames using commercial software.
Prerequisite: CIE302 Structural Analysis I.

CIE512 Concrete Structures II [3-0, 3 cr.]
This course covers the design of beams reinforced for shear and torsion, stair cases, columns, two-way column-supported slabs, footings, foundation, and retaining walls.
Prerequisite: CIE306 Concrete Structures I.

CIE520 Solid Waste Management [3-0, 3 cr.]
This course covers the quantity and quality of municipal and industrial solid wastes, as well as the collection, transfer, disposal, treatment and recovery of solid wastes, hazardous and non-hazardous residues, solid waste management processes, environmental impact assessment, environmental legislation and risk, and pollution control management.
Prerequisite: Fourth Year standing.

CIE521 Hydrology [3-0, 3 cr.]
This course covers the occurrence of water, precipitation, interception, depression storage, infiltration, evaporation, transpiration, snow melt, well hydraulics, stream flow, data sources, instrumentation, runoff and hydrographs, hydrograph routing, probability in hydrologic design, and the introduction to hydrologic modeling.
Prerequisite: CIE322 Hydraulics.

CIE560 Transportation Engineering II [3-0, 3 cr.]
This course covers the analysis and design of infrastructure systems, and the components of highway systems, which include interchanges and intersections. The course also deals with the execution methods and practices, and the basic design of major transportation facilities.
Prerequisite: CIE460 Transportation Engineering I.

CIE580 Construction Management [3-0, 3 cr.]
This course covers the organization and management theory applied to the construction process, scheduling and planning models, CPM, PERT, resource allocation, and budgeting and cost control.
Prerequisite: Fifth Year standing, and INE320 Engineering Economy.

CIE581 Construction Management – SOFT [0-2, 1 cr.]
This course covers the use of commercial software for the operations, scheduling, planning, resource allocation, budgeting and control of construction projects.
Co-requisite: CIE580 Construction Management.

CIE582 Infrastructure Management [3-0, 3 cr.]
This course covers the general methods of engineering systems, management, and the different types of infrastructure. The course covers the analysis of possible financing, and engineering solutions and alternatives, as well as the overall management during the life cycle of the project.
Prerequisite: CIE580 Construction Management.

* This is an elective course and it may be offered at irregular intervals.
DEPARTMENT OF CIVIL ENGINEERING

CIE583 Packaging Engineering [3-0, 3 cr.]
This course is an introduction to the function and design requirements of packaging systems, as well as to design concepts, materials selection, properties, processes, and technology, and the elements of design management.
Prerequisite: Fourth year standing

CIE584 Quality Management Systems* [3-0, 3 cr.]
This course is an introduction to quality management systems, ISO 9000, 14000, Total Quality Management, and the applications of QMS to engineering, and the management of large projects, systems, and organizations.
Prerequisite: Fourth year standing

CIE585 Risk and Natural Hazard Management* [3-0, 3 cr.]
This course covers the types, frequency, and effects of natural hazards, the calculation of the return period, planning and designing engineering systems to survive natural events, and mitigation of damage.
Prerequisite: GNE331 Probability and Statistics.

CIE600 Topics in Civil Engineering [3-0, 3 cr.]
This course covers a special topic relevant to Civil Engineering. The course title and the content are announced prior to registration time.
Prerequisite: To be announced prior to registration time.

CIE601 Project I [3-0, 3 cr.]
This course is an independent work performed by students. The selection of a topic, and the progress of the work, is supervised by a Faculty Advisor. Formal technical report and presentation are required.
Prerequisite: CIE498 Professional Practice.

CIE602 Project II* [3-0, 3 cr.]
This course is an independent work performed by students with emphasis on research. The selection of a topic, and the progress of the work, is supervised by a Faculty Advisor. Formal technical report and presentation are required.
Prerequisite: CIE601 Project I, and the consent of the Instructor.

GRADUATE PROGRAMS

- MASTER OF SCIENCE (M.S.) IN CIVIL AND ENVIRONMENTAL ENGINEERING

The Department of Civil Engineering at the Lebanese American University offers a comprehensive Program leading to the Degree of Master of Science in Civil and Environmental Engineering (CEE) with emphasis in (i) Infrastructure and Construction Management, (ii) Environmental Science, Engineering and Management, or (iii) Engineering Mechanics. The CEE Program aims at attracting qualified students to pursue graduate studies. The Program provides students sound professional and academic training in Civil Engineering, where they have access to a variety of graduate courses in their area of study, and the opportunity to conduct research, thus combining the theoretical and the applied, aspects of Civil Engineering.

The Program is designed to stimulate independent thinking, the acquisition of knowledge, and the application of the acquired knowledge and skills, to the solution of practical engineering problems. The Program provides an indepth experience with one or more particular fields of Civil Engineering, while exposing the student, at the same time, to cross-disciplinary issues and topics that affect the engineering and management of systems.

The M.S. - CEE Degree may be completed with, or without, a Thesis. Program flexibility is one of the key characteristics to suit the student’s long-term career goals, and be consistent with the student’s professional experience, and prior training. This flexibility allows the accommodation of not only the student, who has just received the Undergraduate Degree, but also the experienced Engineer, who is returning for additional formal training.

Mission
The Mission of the Graduate Program in Civil and Environmental Engineering is to provide students with a well-rounded set of career skills, which empowers them to address a wide range of problems, through exposure to an advanced body of knowledge, and scholarly endeavors.

Educational Objectives
The purpose of the Graduate Program in Civil and Environmental Engineering is to:

a. Train the students to develop the methodology, and the necessary skills, to explore the emerging issues in Engineering and Science.
b. Provide the students with an advanced background, and a focused body of knowledge, required for the present day professional practice in their chosen field of study, and to prepare them to adapt to a changing profession.
c. Train the students in an active research environment, to equip them with the latest tools of research, and to prepare them for further study towards the Doctoral Degree.

Learning Outcomes
Graduates of the M.S. - CEE Programs will be able to:

a. Reinforce the skills acquired in the Undergraduate Program.
b. Use advanced analytical, computational, and/or experimental, aspects of Civil Engineering.
c. Make critical judgments, based on a sound knowledge base.
d. Conduct research, and appreciate its importance, in the evolution of Civil Engineering.
EMPHASIS AREAS
The course work for the Masters Program in Civil and Environmental Engineering can be grouped into the following three concentrations, or emphasis areas:
1. Infrastructure and Construction Management
2. Environmental Science, Engineering and Management
3. Engineering Mechanics

In order to satisfy the requirements for the M.S. in Civil and Environmental Engineering, with a specific concentration, or emphasis, the student is required to complete either one of the following options:
1. Infrastructure and Construction Management
2. Environmental Science, Engineering and Management
3. Engineering Mechanics

ADMISSION REQUIREMENTS
The course work for the Masters Program in Civil and Environmental Engineering must have a minimum general Grade Point Average (GPA) equivalent to 2.75, or a grade of "B" on each of these courses. Transfer credits are governed by the Graduate Program Rules and Regulations.

In order to satisfy the requirements for the M.S. in Civil and Environmental Engineering, with a specific concentration, or emphasis, the student is required to complete either one of the following options:
1. Infrastructure and Construction Management
2. Environmental Science, Engineering and Management
3. Engineering Mechanics

DEPARTMENT OF CIVIL ENGINEERING

ENVIRONMENTAL SCIENCE, ENGINEERING AND MANAGEMENT
This is designed to prepare the Graduate Engineer to meet the challenges of planning, financing, designing, building, and managing the public and private infrastructure that supports our civilization, under ever increasing technical, financial, social, and environmental constraints.

M.S. - CEE Requirements
Students are required to complete 30 credits for Graduation. A student in the M.S. Program can choose to pursue a Thesis or a non-Thesis option. Under the Thesis option, the student is required to complete a six-credit Thesis. The remaining credits can be completed according to the course requirements for each Program, in each concentration or emphasis area, as specified below. The Breadth requirements consist of six courses (18 credit hours) for all the emphasis areas. The student should take, at least, the equivalent of 18 credits in each concentration or emphasis area, as specified below. The Breadth requirements consist of six courses (18 credit hours) for all the emphasis areas. The student should take, at least, the equivalent of 18 credits in each concentration or emphasis area.

It is recommended that the remaining courses in each Program/Emphasis area be chosen in the Thesis area, if a Thesis option is selected, and in consultation with the student’s advisor. It is important to note that offering courses in a specific concentration area is contingent on adequate enrollment in that specific course area.

COURSE LISTINGS
Infrastructure and Construction Management
CIE760 Transportation Engineering II
CIE761 Traffic Engineering
CIE782 Infrastructure Management
CIE784 Quality Management Systems
CIE785 Risk and Natural Hazard Management
CIE786 Highway Design and Management
CIE787 Concrete and Steel Construction
CIE788 GIS and Remote Sensing
CIE789 Cost Engineering and Control
CIE790 Construction Methods
CIE791 Project Scheduling
CIE792 Project Contracting

Other Courses (12 credits)
CIE797 Special Topics Course
CIE798 Project course
CIE789 Thesis

Environmental Science, Engineering and Management
CIE720 Solid Waste Management
CIE721 Hydrology
CIE722 Environmental Impact Assessment
CIE723 Water Resources Planning
CIE724 Air Quality Management
CIE725 Geo-environmental Engineering
CIE726 Unit Operations in Water Treatment Systems
CIE727 Unit Operations in Wastewater Treatment Systems
CIE728 Fate & Transport of Pollutants in the Environment
CIE729 Hydrogeology
CIE730 Irrigation and Drainage
CIE731 Urban Water Resources
CIE732 Advanced Environmental Engineering
CIE733 Groundwater Engineering

Engineering Mechanics
CIE700 Steel Structures
CIE701 Finite Element Methods
CIE704 Case Histories in Structural & Geotechnical Engineering
CIE705 Computational Hydraulics
CIE706 Structural Dynamics
CIE707 Earthquake Engineering
CIE708 Applied Elasticity
CIE709 Advanced Concrete Design
CIE710 Pressurized Concrete Design
CIE711 Pavement Design
CIE712 Design of Hydraulic Structures
CIE742 Foundations Engineering

Academic Catalog [2008-2009]
CiE700 Steel Structures [3-0, 3 cr.]
This course is an introduction to the LRFD philosophy. It covers the discussion of the behavior and design of steel structures, design of tension members, simple connections, compression members, laterally supported beams, beams under torsion, and beams under lateral torsional loading.
Prerequisite: CIE302 Structural Analysis I, and CIE304 Stress Analysis

CiE701 Finite Element Methods [3-0, 3 cr.]
This course covers stress analysis of solids which include shape function, displacement interpolation, linear constitutive relations, element stiffness-matrix, direct stiffness method, assessment of model adequacy, error estimation. It also covers stress analysis using commercial software.
Prerequisite: CIE202 Mechanics of Materials.

CiE704 Case Histories in Structural and Geotechnical Engineering [3-0, 3 cr.]
This course is a selection of case histories in structural and geo-technical engineering, exposing the failures, and limitations, of the current practice, and exploring state of the art solutions. The course involves site visits, and visiting lecturers.
Prerequisites: CIE302 Structure Analysis I, and CIE444 Soil Mechanics.

CiE705 Computational Hydraulics [3-0, 3 cr.]
This course covers the formulation of ordinary, and partial, differential equations related to flow and transport problems, such as flood waves, tidal propagation, shallow waves, and transport of pollutants. The course also covers the numerical solutions using finite difference (explicit and implicit) schemes, finite element techniques, and boundary integral methods. Also, the course comprises the measuring techniques in flow problems, data acquisition, and online analysis.
Prerequisite: CIE322 Hydraulics.

CiE706 Structural Dynamics [3-0, 3 cr.]
The course covers the dynamics effects of wind, earthquake, impact and blast loading, vibration of structural components, and the damping effects.
Prerequisite: CIE302 Structural Analysis I.

CiE707 Earthquake Engineering [3-0, 3 cr.]
This course is an introduction to earthquakes, seismological and faulting mechanisms, design of constructed facilities and infrastructural systems under earthquake loads, risk assessment, and strengthening and case studies.
Prerequisites: CIE302 Structure Analysis I, and GNE331 Probability and Statistics.

CiE708 Applied Elasticity [3-0, 3 cr.]
This course covers tensor notation, analysis of stress, two-dimensional elasticity, bending of beams, torsion of prismatic bars, asymmetrically loaded members, beams on elastic foundations, and elastic stability.
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CiE723 Water Resources Planning and Management [3-0, 3 cr.]
This course covers the major issues in the planning, and managing, of water resource systems, and the techniques (e.g., linear programming, dynamic programming, and nonlinear programming) used to solve them. Practical problems in water resource systems such as water allocation, water quality management, reservoir operations, flood control, water resources management, basin modeling, and flood and drought forecasting demonstrated are discussed with system analysis methods.
Prerequisite: CiE721 Hydrology.

CiE724 Air Quality Management [3-0, 3 cr.]
This course covers the analysis of air pollution sources, and methods for controlling emissions, with a focus on transportation-related air pollution. The course also encompasses a summary of fundamental chemical, and physical, processes governing pollutant behavior, and a quantitative overview of the characterization, and control, of air pollution problems. The analysis of key elements of the air pollution system such as the sources and control techniques, atmospheric transformations, atmospheric transport, and modeling, are discussed.
Prerequisites: CiE320 Fluid Mechanics, and CHM201 Chemical Principles.

CiE725 Geo-environmental Engineering [3-0, 3 cr.]
This course covers the geotechnical practice in environmental protection and restoration. The characterization of contaminated sites, preliminary site assessment, site investigation techniques, and site cleanup and remediation technologies, as well as the monitoring requirements, are discussed. The course also covers the methods of soil and site characterization for siting of waste repositories, the design of waste containment systems, including landfills, slurry walls, and soil stabilization, and the applicability and use of geosynthetics.
Prerequisite: CiE444 Soil Mechanics.

CiE726 Unit Operations of Water Treatment Systems [3-0, 3 cr.]
This course covers the theory of aquatic chemistry, and the principles of conventional and advanced unit operations, such as sedimentation, filtration, aeration, ion exchange, reverse osmosis, for the treatment of drinking water and decontamination of groundwater, stability and conditioning, in addition to a detailed design of inlets, outlets, and operational parts of the treatment plant.
Prerequisite: CiE424 Environmental Engineering I.

CiE727 Unit Operations of Wastewater Treatment Systems [3-0, 3 cr.]
This course covers wastewater characteristics and laboratory analysis, population kinetics and micro-organism, and their role in the various waste treatment processes, process selection, oxidation kinetics, process modeling and control, sludge treatment and disposal, as well as unit operations and processes of wastewater treatment.
Prerequisite: CiE426 Environmental Engineering II.

CiE728 Fate and Transport of Pollutants in the Environment [3-0, 3 cr.]
This course emphasizes man-made chemicals, their movement through surface and groundwater, air, soil, and their eventual fate. The course covers the physical transport, as well as chemical and biological sources and sinks, and the linkages to health effects, sources and control, and policy aspects.
Prerequisites: CHM201 Chemical Principles, and CiE322 Hydraulics.

CiE729 Hydrogeology [3-0, 3 cr.]
This course covers the natural parameters, distribution of water, hydro-geological structures, movement and storage of water, methods of investigation, collection of samples, observation of water levels, measurement of aquifer properties, speed and direction of ground water flow, and hydro-geological models.
Prerequisite: CiE721 Hydrology.

CiE730 Irrigation and Drainage [3-0, 3 cr.]
This course covers the irrigation practices application systems, soil-plant-water relationships, irrigation system types, scheduling, effluent reuse, case studies, quantity and quality of stream flow generated in a drainage basin, and surface, and subsurface, drainage systems.
Prerequisite: CiE322 Hydraulics.

CiE731 Urban Water Resources [3-0, 3 cr.]
This course covers the urban climate, urban development effects on catchments responses, design of storm water drainage systems, master plans, management for water pollution, sedimentation, and erosion control, use of models for planning and operation, flood control, reservoir design and operation (linear and dynamic programming, and case studies).
Prerequisite: CiE721 Hydrology.

CiE732 Advanced Environmental Engineering [3-0, 3 cr.]
This course covers reaction kinetics, classes and types of reactions, rates and orders, analysis of experimental data, applications, setup of mass balances, flow analysis of CM and PF regimes, detention time in vessels, flow and quality equalization, system material balances, sludge production in activated sludge systems, nitrogen and phosphorus removal, treatment in ponds and wetlands as well as natural systems; fate and transport of pollutants in natural waters, loading equations for streams, dissolved oxygen variation in a stream.
Prerequisites: CiE426 Environmental Engineering II.

CiE733 Groundwater Engineering [3-0, 3 cr.]
This course covers the flow of incompressible fluids through porous media, groundwater movement, Darcy’s law, groundwater production, recharge, quality, saltwater intrusion, aquifer management, differential equations governing the flows, laboratory and field methods of hydraulic conductivity measurements, confined and unconfined flow, and graphical flow nets and the use of analogs, as well as seepage control in earth structures, soil stabilization, drainage, geo-textiles, and construction denaturing.
Prerequisite: CiE721 Hydrology.
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**CiE742 Foundations Engineering [3-0, 3 cr.]**
This course is an introduction to the elastic and plastic theories of foundations, behavior and design of shallow foundations, behavior and design of lateral earth retaining structures, and an introduction to deep foundations design, and case studies.
Prerequisite: CiE444 Soil Mechanics.

**CiE760 Transportation Engineering II [3-0, 3 cr.]**
This course covers the analysis and design of infrastructure systems, components of highway systems, interchanges, intersections, execution methods and practices, and the basic design of major transportation facilities.
Prerequisite: CiE460 Transportation Engineering I.

**CiE761 Traffic Engineering [3-0, 3 cr.]**
This course covers the human and vehicular characteristics, as they affect highway traffic flow, traffic regulations, accident cause and prevention, improving the flow on existing facilities, planning traffic systems, and terminal problems.

**CiE782 Infrastructure Management [3-0, 3 cr.]**
This course covers the general methods of engineering systems management, and the different types of infrastructure. The course analyzes the possible financing and engineering solutions, and alternatives, as well as the overall management during the life cycle of the project.
Prerequisite: CiE580 Construction Management.

**CiE784 Quality Management Systems [3-0, 3 cr.]**
This course is an introduction to quality management systems, ISO 9000, 14000, Total Quality Management, and the applications of QMS to engineering and management of large projects, systems, and organizations.
Prerequisite: Consent of the Instructor.

**CiE785 Risk and Natural Hazard Management [3-0, 3 cr.]**
This course covers the types, frequency, and the effects of natural hazards, the calculation of the return period, and the planning and designing of engineering systems to survive natural events, as well as the mitigation of damage.
Prerequisites: GNE331 Probability and Statistics.

**CiE786 Highway Design and Management [3-0, 3 cr.]**
This course is an introduction to highway networks, their engineering and management characteristics, and their maintenance and performance issues, financing and cost recovery methods, and integrated solutions and information technology tools (use of HDM tools by the World Road Association PIARC).
Prerequisites: CiE460 Transportation Engineering I, and INE320 Engineering Economy.

**CiE787 Concrete and Steel Construction [3-0, 3 cr.]**
This course covers the selection and planning of construction methods for modern concrete and steel structures, including bridges, high-rise buildings, sea structures, structural steel erection, and the heavy industrial plants including special forming and heavy erection and false-work.
Prerequisites: CiE306 Concrete Structures I, CiE400 Steel Structures, and CiE580 Construction Management.

**CiE788 GIS and Remote Sensing [3-0, 3 cr.]**
This course covers the fundamentals of sensing earth resources, data acquisition and sit, aircraft and satellite images, digital image processing, pattern recognition, feature extraction, and the geographic information systems in various applications, using GIS software including ARC/INFO and ARC-VIEW.
Prerequisite: CiE360 Surveying.

**CiE789 Cost Engineering and Control [3-0, 3 cr.]**
This course covers cost engineering for construction organizations, projects, and operations. It encompasses construction financing, break-even, profit, and cash flow analyses, and capital budgeting, as well as the equipment cost and procurement decisions. Construction financial accounting, cost accounting, cost control systems, and databases are discussed, as well as cost indices, parametric estimates, and unit price proposals, measuring work and settling claims.
Prerequisite: CiE580 Construction Management.

**CiE790 Construction Methods [3-0, 3 cr.]**
This course is an advancement study of the application and analysis of construction equipment and methods. Topics include drilling, blasting, tunneling, de-watering foundations, and rigging studies.
Prerequisites: CiE308 Construction Materials, and CiE306 Concrete Structures I.

**CiE791 Project Scheduling [3-0, 3 cr.]**
This course covers the basic critical path planning, and scheduling, with arrow and precedence networks. The course is an introduction to resource leveling, and least cost scheduling, including time-cost tradeoff analysis, and schedule control.
Prerequisite: Consent of the Instructor.

**CiE792 Project Contracting [3-0, 3 cr.]**
This course covers construction and contracting for contractors, owners and engineers, industry structure, the types of contracts and delivery systems of construction, and the planning, estimating, quantity takeoff and pricing, labor and equipment estimate, as well as the proposal preparation. Students use contract documents to prepare detailed estimates.
Prerequisite: Consent of the Instructor.
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CIÉ799 Special Topic Course [3-0, 3 cr.]
This course is a special topic course which can be offered in any of the concentration areas. When offered, it is counted towards the Degree requirements as a regular course.
Prerequisite: To be announced prior to registration time.

CIÉ891 Project Course [3-0, 3 cr.]
This course is a project course in any of the concentration areas. It can be taken by the Graduate student seeking a non-Thesis Master’s Degree. It is contingent upon the Advisor’s approval. The student is limited to one Project course per Degree.
Prerequisite: Consent of the Instructor

CIÉ899 Thesis [6-0, 6 cr.]
This course is an independent work performed by students with emphasis on research, and leading to original contribution to knowledge. The selection of the topic and the progress of the work are supervised by a Faculty Advisor. The student is limited to one Thesis course per Degree.
Prerequisite: Consent of the Instructor

DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

The Department of Electrical & Computer Engineering offers the following degree programs:

UNDERGRADUATE PROGRAMS

1. Bachelor of Engineering (B.E.) in Computer Engineering
2. Bachelor of Engineering (B.E.) in Electrical Engineering.

GRADUATE PROGRAMS

Master of Science (M.S.) in Computer Engineering.

UNDERGRADUATE PROGRAMS

BACHELOR OF ENGINEERING IN COMPUTER ENGINEERING

Students in the Computer Engineering Program develop an in-depth knowledge of digital systems, computers, and software.

In addition to the Computer Engineering Core, the Program emphasizes topics in communication systems. Courses include subjects in microprocessors, operating systems, computer architecture, database systems, networking, electronics, telecommunications, controls, software engineering, reconfigurable computing, and CAD for VLSI. This provides for a balanced coverage, and an integration of hardware, software, and communications engineering.

Six credits of professional experience are also included in the Summer of the third year, to give students an opportunity to integrate classroom instruction with practical work experience, as a part of their academic program. The broad scope of the Program enables the students to pursue many different career paths in the design, and the use, of computing and communication systems.

Graduates of the Program are prepared for employment in the Computer and Communication Industries, and may also select to pursue Graduate studies.

The Computer Engineering Program requires the completion of 153 semester hours, including the 67 credits of the common Pre-Engineering Program. While the Program is credit-based, a typical schedule, over a four-year period, including Summer modules, is listed below. Students may select to take these courses over a longer period of time.

Mission
The Mission of the Computer Engineering Program is to educate each student to become a responsible, and productive, Computer Engineer who can effectively manage future challenges.

Educational Objectives
The purpose of the Computer Engineering Program is to graduate students who will be able to:

a. Provide the necessary foundation in the principles and methods of Computer Engineering, while preparing students for a broad range of responsible technical positions in the industry, and for Graduate education.

b. Provide the technical skills necessary to design, apply, and implement systems in Computer and Communication Engineering, to conduct open ended problem solving, and to apply critical thinking.

c. Develop an understanding of the relationships between theory and practice, through investigative laboratory work, and classroom lecture/demonstrations.

d. Offer students the opportunity to deepen their technical understanding in particular subject areas, through a set of related technical electives.

e. Provide students with the skills for effective communication and responsible teamwork, as well as an appreciation for professional attitudes and ethics, in order to prepare them for the future work environment, and for lifelong learning.
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Learning Outcomes  
Graduates of the Computer Engineering Program will acquire the following skills:  
a. The ability to apply knowledge of mathematics, science, and engineering.  
b. The ability to design and conduct experiments, as well as to analyze and interpret data.  
c. The ability to design, implement, test, and evaluate a computer system, component, or algorithm, to meet the desired needs.  
d. The ability to function on multi-disciplinary teams.  
e. The ability to identify, to formulate, and to solve, engineering problems.  
f. An understanding of one’s professional and ethical responsibilities.  
g. The ability to communicate effectively.  
h. An understanding of the impact of engineering solutions on a global, and societal, context.  
i. Recognition of the need, and the ability, to engage in life-long learning.  
j. Knowledge of contemporary issues.  
k. The ability to use the techniques, skills, and modern computer, and partly electrical, engineering tools, necessary for the engineering practice.  

MAJOR REQUIREMENTS  
FIRST YEAR  
Fall Semester (17 credits)  
COE201 Computer Proficiency 1  
CSC243 Intro. to Object Oriented Programming 3  
ENG202 Sophomore Rhetoric 3  
MTH201 Calculus III 3  
PHY201 Electricity and Magnetism 4  
CIE200 Statics 3  

Spring Semester (17 credits)  
CSC245 Objects and Data Abstraction 3  
—— Liberal Arts Curriculum Elective 3  
ELE201 Electrical Circuits I 3  
ETH201 Moral Reasoning 1  
MEE220 Engineering Graphics 4  
MTH304 Differential Equations 3  

Summer Module I (6 credits)  
CHM201 Chemical Principles 3  
MTH206 Calculus IV 3  

SECOND YEAR  
Fall Semester (18 credits)  
COE312 Data Structures 3  
ELE302 Electrical Circuits II 3  
ELE303 Electrical Circuits II Lab 1  
COE321 Logical Design 3  
COE322 Logical Design Lab 1  
GNE333 Engineering Analysis I 3  
HLT201 Basic Health 1  
—— Liberal Arts Curriculum Elective 3  

Spring Semester (17 credits)  
COE323 Microprocessors 3  
COE324 Microprocessors Lab 1  
COE418 Database Systems 3  
ELE401 Electronics I 3  
ELE402 Electronics I Lab 1  
ELE430 Signals and Systems 3  
MEE241 Dynamics 3  

Summer Module I (5 credits)  
ENG203 Fundamentals of Oral Communication 3  
GNE301 Professional Communication 2  

Summer Module II (4 credits)  
GNE351 Probability and Statistics 3  
PED2 — Physical Education 1  

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THIRD YEAR  
Fall Semester (16 credits)  
INE320 Engineering Economy I 3  
COE414 Operating Systems 3  
ELE337 Communication Systems 3  
ELE442 Control Systems 3  
ELE443 Control Systems Lab 1  
—— Liberal Arts Curriculum Elective 3  

Spring Semester (14 credits)  
COE416 Software Engineering 3  
COE424 Reconfigurable Computing 3  
COE425 Reconfigurable Computing Lab 1  
ELE338 Noise in Communication Systems 3  
ELE339 Telecommunications 3  
ELE540 Communication Systems Lab 1  

Summer Module I (6 credits)  
COE498 Professional Experience 6  

FOURTH YEAR  
Fall Semester (15 credits)  
COE423 Computer Architecture 3  
COE591 Project I 3  
—— Liberal Arts Curriculum Elective 3  
INE402 Optimization 3  
—— Technical Elective 3  

Spring Semester (15 credits)  
—— Liberal Arts Curriculum Elective 3  
INE427/449 Project Scheduling/Contracting 3  
—— Technical Elective 3  
—— Technical Elective 3  
COE431 Computer Networks 3  

Technical Electives  
Any ELE/COE course can be considered as a Technical Elective, as long as it is not a required course, with the exception of ELE305 Introduction to Electrical Engineering.  

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COURSE DESCRIPTIONS

COE201 Computer Proficiency [0-2, 1 cr.]
This course covers word processing, spreadsheet, presentation software, internet, e-mail, database, and web design.

COE211 Computer Programming [3-2, 4 cr.]
This course covers the master one language syntax, structured programming, basic constructs, arrays, object programming, case studies, and projects.
Prerequisite: COE201 Computer Proficiency.

COE312 Data Structures [3-0, 3 cr.]
This course covers the programming principles, stacks and recursion, queues, lists, searching, and sorting algorithms, binary trees, and the introduction to object-oriented programming concepts.
Prerequisites: CSC245 Computer Programming II.

COE314 File Processing* [3-0, 3 cr.]
This course covers the data transfer, sequential files, indexed files, tree-based files, and the multi-list and inverted files.
Prerequisite: COE312 Data Structures.

COE321 Logical Design [3-0, 3 cr.]
This course covers the digital signals, binary numbers, logic numbers, combinational logic design, boolean algebra, MSI building blocks, arithmetic circuits, flip flops, sequential state machines, registers, shift registers, counters, asynchronous logic, and synchronous logic.
Prerequisites: COE201 Computer Proficiency, CSC243 Introduction to Object Oriented Programming or COE211 Computer Programming, ELE302 Electrical Circuits II.

COE322 Logical Design Lab [0-3, 1 cr.]
This is a lab course with experiments in Logical Design.
Concurrent with COE321 Logical Design.

COE323 Microprocessor [3-0, 3 cr.]
This course covers the microprocessors and assembly language, storing, manipulating, moving data, basics of control flow, interfacing to analog and/or digital devices, and the device drivers’ development.
Prerequisite: COE321 Logical Design.

COE324 Microprocessor Lab [0-3, 1 cr.]
This is a lab course with experiments in Microprocessor.
Concurrent with COE323 Microprocessor.

COE414 Operating Systems [3-0, 3 cr.]
This course covers the process management, process synchronization, process communications, process scheduling, disk management, and the security and protection.
Prerequisite: COE323 Microprocessors.

* This is an elective course and it may be offered at irregular intervals.

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COE416 Software Engineering [3-0, 3 cr.]
This course covers the S/W analysis, and the development, design, and documentation.
Prerequisite: COE312 Data Structures.

COE418 Database Systems [3-0, 3 cr.]
This course covers the data modeling, relational database, SQL, query languages, object oriented databases, and client-server databases.
Prerequisite: COE312 Data Structures.

COE423 Computer Architecture [3-0, 3 cr.]
This course covers the general data path design techniques, instruction set design, general control path design techniques, hardwired control, micro-programmed control, and the basic pipelined techniques for data-path and control design.
Prerequisites: COE321 Logical Design, COE323 Microprocessors.

COE424 Reconfigurable Computing [3-0, 3 cr.]
This is an introduction to VLSI design and digital testing, rapid prototyping using reconfigurable architectures, field programmable gate arrays (FPGA’s), design abstractions, design style, high-level design methodologies, and the RTL and system level design.
Prerequisite: COE323 Microprocessors.

COE425 Reconfigurable Computing Lab [0-3, 1 cr.]
This is a lab course with experiments in reconfigurable computing.
Concurrent with COE424 Reconfigurable Computing.

COE431 Computer Networks [3-0, 3 cr.]
This course covers the networks, topologies, installation and configuration, testing, modeling and simulating networks, protocols, standards, TCP/IP, and socket programming.
Prerequisite: COE423 Computer Architecture.

COE498 Professional Experience [0-6, 6 cr.]
This course entails professional experience through training in the execution of real-life engineering projects.
Prerequisite: Final Year standing, and the consent of the Instructor.

COE511 Object Oriented Programming [3-0, 3 cr.]
This course covers object-oriented techniques for analysis, design, and implementation.
Prerequisite: COE312 Data Structures.

COE533 Advanced Computer Networks [3-0, 3 cr.]
This course covers advanced networks, remote procedure calls (RPC’s), layering, and ISO.
Prerequisite: COE431 Computer Networks.

COE591 Project I [3-0, 3 cr.]
This course is a selected engineering project, using acquired technical knowledge, formal report, and presentation.
Prerequisite: Final Year standing, and the consent of the Instructor.
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COE592 Project II [3-0, 3 cr.]
This course is an advanced engineering project, using acquired technical knowledge, formal report, and presentation.
Prerequisite: Final Year standing, and the consent of the Instructor.

COE599 Topics in Computer Engineering [1-3, 3 cr.]
This course covers the treatment of new developments in various areas of computer engineering.
Prerequisite: Final Year standing, and the consent of the Instructor.

BACHELOR OF ENGINEERING IN ELECTRICAL ENGINEERING
Electrical Engineering is a science-oriented branch of Engineering, primarily concerned with all the phases of development, and utilization of electric signals, energy, and intelligence. The study of Electrical Engineering can be conveniently divided into the academic areas of circuits, electronics, electromagnetism, electric energy systems, communications, control, and computer engineering. Due to the extremely rapid growth, and changes relating to the application of electrical engineering principles, the curriculum is designed for concentration on a solid core of basic foundation courses, covering all areas of Electrical Engineering.

Six credits of professional experience are also included in the Summer of the third year, to give students an opportunity to integrate classroom instruction with practical work experience, as a part of their academic program.

The Electrical Engineering Program requires the completion of 150 semester hours, including the 67 credits of the common Pre-Engineering Program. While the Program is credit based, a typical schedule over a four-year period, including Summer modules, is listed below. Students may select to take these courses over a longer period of time.

Mission
The Mission of the Electrical Engineering Program is to educate each student to become a responsible, and productive, Electrical Engineer, who can effectively manage future challenges.

Educational Objectives
a. To provide the necessary foundation in the principles, and methods, of Electrical Engineering, while preparing students for a broad range of responsible technical positions in the industry, and for Graduate education.
b. To provide the technical skills necessary to design, apply, and implement systems in Electrical Engineering, to conduct open ended problem solving, and to apply critical thinking.
c. To develop an understanding of the relationships between theory and practice, through investigative laboratory work, and classroom lecture/demonstrations.
d. To offer students the opportunity to deepen their technical understanding in particular subject areas, through a set of related technical electives.
e. To provide students with skills for effective communication and responsible teamwork, as well as an appreciation for professional attitudes and ethics, in order to prepare them for the future work environment, and for lifelong learning.
DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

Learning Outcomes
Program outcomes include the skills acquired by students at Graduation, in order to achieve the educational objectives of the Program. These include the following:

a. The ability to apply knowledge of mathematics, science, and engineering.
b. The ability to design and conduct experiments, as well as to analyze and interpret data.
c. The ability to design, implement, test, and evaluate, an electrical system, component, or algorithm, to meet the desired needs.
d. The ability to function on multi-disciplinary teams.
e. The ability to identify, to formulate, and to solve engineering problems.
f. An understanding of one's professional and ethical responsibility.
g. The ability to communicate effectively.
h. An understanding of the impact of engineering solutions in a global, and societal, context.
i. Recognition of the need for an ability to engage in life-long learning.
j. Knowledge of contemporary issues.
k. The ability to use the techniques, skills, and modern electrical, and partly computer, engineering tools, necessary for the engineering practice.

MAJOR REQUIREMENTS
FIRST YEAR
Fall Semester (18 credits)

- COE201 Computer Proficiency 1
- ENG202 Sophomore Rhetoric 3
- MTH201 Calculus III 3
- PHY201 Electricity and Magnetism 4
- CIE200 Statics 3
- COE211 Computer Programming 4

Spring Semester (16 credits)

- CHM201 Chemical Principles 3
  ——— Liberal Arts Curriculum Elective 3
- ELE201 Electrical Circuits I 3
- ETH201 Moral Reasoning 1
- MTH204 Differential Equations 3
- MTH206 Calculus IV 3

Summer Module I (3 credits)

- GNE333 Engineering Analysis I 3

SECOND YEAR
Fall Semester (16 credits)

- ELE302 Electrical Circuits II 3
- ELE303 Electrical Circuits II Lab 1
- GNE301 Professional Communication 2
- INE201 Engineering Economy I 3
- MEE241 Dynamics 3
- MEE220 Electronics I 4

Spring Semester (15 credits)

- ELE401 Electromagnetics 3
- ELE402 Electromagnetics I Lab 1
- ELE411 Electromagnetic Fields 3
- MEE401 Energy Systems 2
- ELE430 Signals and Systems 3
  ——— Liberal Arts Curriculum Elective 3

Summer Module I (3 credits)

- ENG203 Fundamentals of Oral Communication 3

Summer Module II (4 credits)

- GNE331 Probability and Statistics 3
- PED2 Physical Education 1

THIRD YEAR
Fall Semester (17 credits)

- COE321 Logical Design 3
- COE322 Logical Design Lab 1
  ——— Liberal Arts Curriculum Elective 3
- ELE413 Electromagnetic Waves 3
- ELE537 Communication Systems 3
- ELE442 Control Systems 3
- ELE443 Control Systems Lab 1

Spring Semester (17 credits)

- COE323 Microprocessors 3
- COE324 Microprocessors Lab 1
  ——— Liberal Arts Curriculum Elective 3
- ELE420 Electromechanics 3
- ELE538 Noise in Communication Systems 3
- ELE539 Telecommunication Systems 3
- ELE540 Communication Systems Lab 1

Summer Module I (6 credits)

- GNE498 Professional Experience 6

DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

FOURTH YEAR
Fall Semester (16 credits)

- ELE591 Project I 3
- INE401 Optimization 3
- ELE422 Power Systems 3
- HLT201 Basic Health 1
  ——— Technical Elective 3
  ——— Liberal Arts Curriculum Elective 3

Spring Semester (16 credits)

- ELE528 Electrification of Plants 3
- ELE423 Power Systems Lab 1
- INE427 / 429 Project Scheduling / Contracting 3
  ——— Technical Elective 3
  ——— Technical Elective 3
  ——— Technical Elective 3

Technical Electives
Any ELE/COE course can be considered as a Technical Elective, as long as it is not a required course, with the exception of ELE305 Introduction to Electrical Engineering.
DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

COURSE DESCRIPTIONS

**ELE201 Electrical Circuits I [3-0, 3 cr.]**
This course covers the resistors, capacitors and inductors, transformers, voltage and current sources, operational amplifiers, voltage and current laws, node and mesh analysis, network theorems, power and energy, three-phase circuits, DC and sinusoidal excitation of circuits, and computer-aided circuit simulation (SPICE).
Prerequisite: PHY201 Electricity and Magnetism.

**ELE302 Electrical Circuits II [3-0, 3 cr.]**
This course covers the frequency-domain response of circuits, transfer functions, resonant circuits and filter designs, time-domain response of circuits, step, impulse and ramp responses, linearity and time invariance, input-output descriptions of circuits, parameter representation of two-port networks, and computer-aided circuit simulation (SPICE).
Prerequisites: ELE201 Electrical Circuits I, MTH204 Differential Equations.

**ELE303 Electrical Circuits II Lab [0-3, 1 cr.]**
This is a lab course with experiments in Electrical Circuits II.
Concurrent with ELE302 Electrical Circuits II.

**ELE305 Introduction to Electrical Engineering* [3-0, 3 cr.]**
This course covers the study of AC/DC electrical circuits, single-phase and three-phase systems, basic electronics, and survey of AC/DC machines.
Prerequisite: Second Year standing.

**ELE401 Electronics I [3-0, 3 cr.]**
This course covers the semiconductors, diodes, transistors, integrated circuits, operational amplifiers, and computer-aided circuit simulation (SPICE).
Prerequisite: ELE302 Electrical Circuits II.

**ELE402 Electronics I Lab [0-3, 1 cr.]**
This is a lab course with experiments in Electronics I.
Concurrent with ELE401 Electronics I.

**ELE411 Electromagnetic Fields [3-0, 3 cr.]**
This course covers the electromagnetic model, vector analysis, static electric fields, and static magnetic fields.
Prerequisite: PHY201 Electricity and Magnetism.

**ELE413 Electromagnetic Waves [3-0, 3 cr.]**
This course covers the time-varying fields, and Maxwell’s equations, plane electromagnetic waves, transmission lines, wave guides, and antennas.
Prerequisites: ELE201 Electrical Circuits I, ELE411 Electromagnetic Fields.

**ELE420 Electromechanics [3-0, 3 cr.]**
This course covers the magnetic circuits, power transformers, DC machines, induction machines, and synchronous machines.
Prerequisites: ELE201 Electrical Circuit I, ELE411 Electromagnetic Fields.

*This is an elective course and it may be offered at irregular intervals.

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**ELE422 Power Systems [3-0, 3 cr.]**
This course covers the complex power, power triangle, per unit system, power system components models, admittance model and network calculations, power-flow solutions, and economic dispatch.
Prerequisite: ELE420 Electromechanics.

**ELE423 Power Systems Lab [0-3, 1 cr.]**
This is a lab course with experiments in power systems.
Prerequisite: ELE420 Electromechanics.

**ELE430 Signals and Systems [3-0, 3 cr.]**
This course covers the signal and system modeling concepts, system modeling and analysis in time domain, the Fourier series, the Fourier transform and its applications, the laplace transformation and its applications, discrete-time signals and systems, analysis and design of digital filters, and DFT and FFT.
Prerequisite: ELE302 Electrical Circuits II.

**ELE442 Control Systems [3-0, 3 cr.]**
This course covers modeling and dynamical systems, transient-response analysis, response of control systems, root locus analysis, and modern control (state space).
Prerequisite: ELE430 Signals and Systems.

**ELE443 Control Systems Lab [0-3, 1 cr.]**
This course covers laboratory experiments in control systems.
Concurrent with ELE442 Control Systems.

**ELE498 Professional Experience [0-6, 6 cr.]**
This course entails a professional experience through training in the execution of real life engineering projects.
Prerequisite: Final Year standing, and the consent of the Instructor.

**ELE502 Electronics II [3-0, 3 cr.]**
This course covers differential and multi-stage amplifiers, frequency response, feedback topologies, power amplifiers, filters and tuned amplifiers, MOS digital circuits, and computer-aided circuit simulation (SPICE).
Prerequisite: ELE401 Electronics I.

**ELE525 Faulted Power System* [3-0, 3 cr.]**
This course covers the impedance model, three-phase symmetrical faults, symmetrical components, and unsymmetrical faults.
Prerequisite: ELE422 Power Systems.

**ELE527 Power Electronics [3-0, 3 cr.]**
This course covers power semiconductor devices, controlled rectifiers, AC voltage controllers, choppers, inverters, and cycloconverters.
Prerequisites: ELE401 Electronics I, ELE420 Electromechanics.
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ELE528 Electrification of Plants [3-0, 3 cr.]
This course covers short circuit analysis, electric plant layouts, power distribution systems, lighting and auxiliary system design.

ELE537 Communication Systems [3-0, 3 cr.]
This course covers linear and angle modulation/demodulation, feedback demodulators (PLL), analog and digital pulse modulation, interference, and multiplexing.
Prerequisite: ELE430 Signals and Systems.

ELE538 Noise in Communication Systems [3-0, 3 cr.]
This course covers physical noise sources, noise calculations in communication systems, stochastic processes, and communication systems performance in the presence of noise.
Prerequisite: ELE537 Communication Systems.

ELE539 Telecommunication Systems [3-0, 3 cr.]
This course covers spread spectrum and data communications, microwave and satellite links, optical fiber, mobile radio systems, the evolution of mobile radio communications including 2G, 2.5G and 3G, cellular concept, and mobile radio propagation including large-scale path loss.
Prerequisite: ELE537 Communication Systems.

ELE540 Communication Systems Lab [0-3, 1 cr.]
This is a lab course with experiments in communication systems. Concurrent with ELE538 Noise in Communication Systems.

ELE544 Feedback Control* [3-0, 3 cr.]
This course covers the frequency response analysis, control systems design by frequency response, PID controls, and introduction to robust control.
Prerequisite: ELE442 Control Systems.

ELE591 Project I [3-0, 3 cr.]
This course is a selected engineering project using acquired technical knowledge, formal report, and presentation.
Prerequisites: Final Year standing, and the consent of the Instructor.

ELE592 Project II [3-0, 3 cr.]
This course is an advanced engineering project using acquired technical knowledge, formal report, and presentation.
Prerequisites: Final Year standing, and the consent of the Instructor.

ELE599 Topics in Electrical Engineering [1-3, 3 cr.]
This course covers the treatment of new development in various areas of Electrical Engineering.
Prerequisites: Final Year standing, and the consent of the Instructor.

* This is an elective course and it may be offered at irregular intervals.

DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

GRADUATE PROGRAMS

MASTER OF SCIENCE IN COMPUTER ENGINEERING
The Graduate Computer Engineering (COE) and the Computer and Communication Engineering (CCE) Programs strive to prepare students for further Graduate studies, as well as for a possible career in the industry. Two important objectives are addressed:

1. A sufficient level of Breadth that guarantees general knowledge in the main areas of COE/CCE. These areas were chosen carefully to span four major areas: Hardware and Systems, Software and Theory, Communication Systems, and Systems Engineering.
2. A sufficient level of Depth that will allow students some degree of specialization. Therefore, students will have the requisite background needed to pursue a higher graduate education, and perform research. In addition, the curriculum provides a good practical experience by allowing students to choose from a variety of practical, and implementation oriented courses.

Mission
The Mission of the Graduate Program in Computer Engineering is to train Graduate students in an active research environment, and to equip them with the latest tools of research.

Educational Objectives
The purpose of the Graduate Program in Computer Engineering is to:

a. Aid students in creatively using their background in basic sciences, and mathematics, as well as their expertise in certain areas of Computer Engineering, in solving engineering problems.
b. Assist students in innovatively applying the design process to complex engineering problems, and innovatively using computers as a tool for simulation, analysis, design, and computing.
c. Provide a creative, critical, and model-based, thinking and problem solving approach.
d. Offer students the opportunity to do research on important scientific and technical problems, and to disseminate knowledge, and to publish research findings.

Learning Outcomes
Graduates of the Graduate Program in Computer Engineering will acquire the following skills:

a. The ability to demonstrate a mastery of the methodology, and the techniques specific to the field of study.
b. The ability to communicate both orally, and in writing, at a high level of proficiency in the field of study.
c. The ability to conduct research, or to develop other forms of creative project work.
d. The ability to function as a professional in the discipline.

Emphasis Areas
The course work for the Master’s Program in Computer Engineering can be grouped into the following two emphasis areas:

1. Computer Engineering
2. Computer and Communication Engineering

Computer Engineering (CE) focuses on the design, analysis, and application of computers, and on their applications as components of systems.

Computer and Communication Engineering (CCE) focuses on the design, analysis, and application of communication, and telecommunication systems, as well as systems in computer engineering.

Admission Requirements
Applicants for admission to this Program must have a Bachelor of Science in Engineering, or a Bachelor of Engineering Degree from a recognized college or university, with a minimum general Grade Point Average (GPA) equivalent to 2.75, on a 4-point scale, or 2.75 in the Major. If the Bachelor’s Degree is not in the field to be pursued, and/or if the GPA is less than 2.75, the applicant may be admitted as “Special”, as described in the Graduate Programs Academic Rules and Regulations.

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DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

Credit Requirements

The Graduate Program in COE, with emphasis in COE or CCE, consists of 30 credit hours, and leads to a Master of Science in Computer Engineering, with Emphasis in COE or CCE.

Students with a Bachelor of Engineering Degree, and who are pursuing a Master of Science Degree, may transfer, up to six credits, from their Bachelor of Engineering Degree, provided that the transferred credits correspond to courses labeled Graduate courses, and the student has scored at least a “B” on each of these courses.

Graduate Course Requirements

The Graduate courses have been grouped into the following four concentration areas:

1. Hardware and Systems
2. Software and Theory
3. Communication Systems
4. Systems Engineering

The proposed Graduate curricula for each of the two Programs are based on the Breadth and Depth Requirements. The breadth requirements consist of six courses (18 credit hours) for both Programs.

For the COE Program, at least:

- Four courses from the Hardware and Systems concentration area.
- One course from the Software and Theory concentration area.
- One course from either Communication Systems, or Systems Engineering, concentration areas.

For the CCE Program, at least:

- Two courses from the Hardware and Systems concentration area.
- One course from the Software and Theory concentration area.
- Two courses from the Communication Systems, and one course from the Systems Engineering, concentration areas.

The remaining courses may be chosen, without restriction, from any of the four concentration areas, and counted towards the Depth Requirement. It is recommended that these courses be chosen in the Thesis area, in consultation with the student’s Advisor.

Course Listings

The following is a list of selected courses (three credits each) in the four concentration areas:

Hardware & Systems:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COE725</td>
<td>VLSI Design</td>
<td>3</td>
</tr>
<tr>
<td>COE721</td>
<td>Embedded Systems</td>
<td>3</td>
</tr>
<tr>
<td>COE722</td>
<td>Rapid Prototyping</td>
<td>3</td>
</tr>
<tr>
<td>COE726</td>
<td>VLSI Design Automation</td>
<td>3</td>
</tr>
<tr>
<td>COE728</td>
<td>ULSI Testing</td>
<td>3</td>
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</tbody>
</table>

Systems

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COE533</td>
<td>Advanced Computer Networks</td>
<td>3</td>
</tr>
<tr>
<td>COE711</td>
<td>Transactions Processing Systems</td>
<td>3</td>
</tr>
<tr>
<td>COE712</td>
<td>Distributed Systems</td>
<td>3</td>
</tr>
<tr>
<td>COE713</td>
<td>Compilers</td>
<td>3</td>
</tr>
<tr>
<td>COE723</td>
<td>High Performance Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>COE732</td>
<td>Networks Security</td>
<td>3</td>
</tr>
</tbody>
</table>

Software & Theory:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COE714</td>
<td>Advanced Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>COE715</td>
<td>Object-Oriented Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>COE716</td>
<td>Knowledge-Based Systems</td>
<td>3</td>
</tr>
<tr>
<td>COE717</td>
<td>Parallel Programming and Cluster Workstations</td>
<td>3</td>
</tr>
<tr>
<td>COE718</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>COE741</td>
<td>Artificial Intelligence</td>
<td>3</td>
</tr>
</tbody>
</table>

Theory and Algorithms

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COE742</td>
<td>Neural Networks</td>
<td>3</td>
</tr>
<tr>
<td>COE752</td>
<td>Design &amp; Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>COE753</td>
<td>Heuristic Optimization</td>
<td>3</td>
</tr>
<tr>
<td>COE754</td>
<td>Automata Theory &amp; Formal Languages</td>
<td>3</td>
</tr>
</tbody>
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Communication Systems:

<table>
<thead>
<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>ELE538</td>
<td>Noise in Communication Systems</td>
<td>3</td>
</tr>
<tr>
<td>ELE731</td>
<td>Optical Fiber Communications</td>
<td>3</td>
</tr>
<tr>
<td>ELE732</td>
<td>Wireless Communication Systems</td>
<td>3</td>
</tr>
<tr>
<td>ELE733</td>
<td>Mobile Communication Systems</td>
<td>3</td>
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</table>

Systems Engineering:

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>ELE742</td>
<td>Linear Systems</td>
<td>3</td>
</tr>
<tr>
<td>ELE751</td>
<td>Digital Signal Processing</td>
<td>3</td>
</tr>
<tr>
<td>ELE752</td>
<td>Stochastic Processes and Applications</td>
<td>3</td>
</tr>
<tr>
<td>ELE753</td>
<td>Reliability Evaluation of Engineering Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Other Courses:

- Special Topics 3
- COE898 Project 3
- COE899 Thesis 6

Topics Courses

When offered, advanced Topic Courses can count towards the Breadth or Depth requirements, upon the approval of the student’s Advisor. Topic Courses are three-credit courses, and might not be offered every year.

Project Courses

A three-credit Project course, in any of the concentration areas, can also be considered as a regular course, only for the non-Thesis option. The student is limited to, at most, one Project Course.

Remedial Courses

Remedial courses may be required from students seeking a degree not in their undergraduate field of specialization.
DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

COURSE DESCRIPTIONS

COE711 Transactions Processing Systems [3-0, 3 cr.]
This course covers the theoretical foundations underlying commitment protocols that form the basis of transaction processing techniques. Transaction Processing Systems have lots of moving parts such as: client-side forms, web servers, mid-tier application servers, and back-end databases. Although these components are distributed across multiple processes, these processes share state, and use specialized communication protocols and synchronization techniques. This course explains how these systems are constructed. Topics include the transaction abstraction, application servers, transactional communications, persistent queuing and workflow, software fault tolerance, concurrency control algorithms, database recovery algorithms, distributed transactions, two-phase commit, and data replication.
Prerequisite: COE312 Data Structures and Algorithms.

COE712 Distributed Systems [3-0, 3 cr.]
This course is an introduction to distributed systems, distributed system models, network architecture and protocols, interprocess communication, client-server models, group communication, TCP sockets, remote procedure calls, distributed objects and remote invocaton, distributed file systems, file service architecture, name services, directory and discovery services, distributed synchronization and coordination, and distributed multimedia systems.

COE713 Compilers [3-0, 3 cr.]
This course covers the design and implementation of compilers for high-level languages. Topics include lexical and syntactic analysis, parsing techniques, top-down and bottom-up recognition trees for context-free grammars, LR(k) parsers, error recovery, semantic analysis, storage allocation for block structured languages, symbol table management, optimization, code generation, run time system design, implementation issues related to programming language design. A programming project is required.
Prerequisites: COE312 Data Structures and Algorithms.

COE714 Advanced Software Engineering [3-0, 3 cr.]
This course covers the techniques for the construction of reliable and cost-effective large-scale software. Topics include process models, requirements analysis and specification, design methods and principles, testing methodologies, software maintenance, software metrics, and software management and quality. Students will explore, in depth, current research work on a topic of their choice.

COE715 Object-Oriented Software Engineering [3-0, 3 cr.]
This course introduces key concepts in object-oriented programming, and software engineering. Topics covered include data abstraction and encapsulation, polymorphism, object-oriented analysis and design methods, object-oriented programming templates, design patterns, an introduction to UML, documentation, debugging, metrics, formal specification, user-interfaces, concurrent and distributed objects, process and project management issues.
Prerequisite: COE312 Data Structures and Algorithms.

COE716 Knowledge-Based Systems [3-0, 3 cr.]
This course covers the knowledge representation, search techniques, logical reasoning, and language understanding. The course is an introduction to the methodology of design, and the implementation of expert systems. The course emphasizes the techniques for representing, and organizing, domain and control knowledge, as opposed to the theory and implementation of inference engines.
Prerequisite: COE312 Data Structures and Algorithms.

COE717 Parallel Programming and Cluster Workstations [3-0, 3 cr.]
This course covers a parallel computing, using groups of computers to solve problems at a greater computational speed. Topics include parallel computing techniques and algorithms, including divide and conquer, pipelined computations, genetic algorithms and simulated annealing. Topics also include synchronous and asynchronous computations, load balancing, shared memory, distributed memory, and distributed shared memory. Use of the message-passing method of parallel computing and use the standard parallel computing tools such as PVM and MPI.
Prerequisite: COE312 Data Structures and Algorithms.

COE718 Computer Graphics [3-0, 3 cr.]
This course is an introduction to computer graphics algorithms, programming methods, and applications, with a focus on the fundamentals of two and three dimensional raster graphics, scan-conversion, clipping, geometric transformations, computational geometry, computer-human interfaces, animation, and visual realism.
Prerequisite: CSE312 Data Structures and Algorithms.

COE721 Embedded Systems [3-0, 3 cr.]
This course explores the embedded system hardware and firmware design, embedded processor selection, hardware/firmware partitioning, glue logic, circuit design, circuit layout, circuit debugging, development tools, firmware architecture, firmware design, and firmware debugging, analysis of the architecture and instruction set of a popular microcontroller, and the relationship between hardware and high-level languages.
Prerequisites: COE323 Microprocessors, and COE321 Logical Design.

COE722 Rapid Prototyping [3-0, 3 cr.]
This course covers the principles and techniques for rapid prototyping of electronic systems, top-down design methodology, techniques, technologies, and tradeoffs (design time – cost – speed – power – area) as applied to the entire digital electronic system design hierarchy (system – module – chip – circuit), high-level system specification, and simulation techniques, synthesis and schematic capture alternatives to hardware realization.
Prerequisite: COE312 Reconfigurable Computing.

COE723 High Performance Computer Architecture [3-0, 3 cr.]
This course covers the concepts and examples of advanced computer systems, especially scalable parallel computers. Topics include memory-system design, advanced processor design techniques, pipelined, vector, shared-memory, and distributed-memory computer systems, parallel algorithms, and software and architectural issues for efficient parallel processing.
DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

COE725 VLSI Design [3-0, 3 cr.]
This course covers the VLSI design, circuits’ layout, timing, delay, power estimation, use of layout editors and circuit simulation tools, synthesis, and an introduction to electronic design automation.
Prerequisite: COE321 Logical Design

COE726 VLSI Design Automation [3-0, 3 cr.]
This course covers the algorithms and methodologies for the synthesis, analysis, and verification of digital systems, silicon compilation, high-level synthesis, logic synthesis, and layout synthesis, hardware description languages and their use in the synthesis process, fault simulation and coverage analysis, and the extensive use of electronic design automation Tools.
Prerequisite: COE321 Logic Design.

COE728 ULSI Testing [3-0, 3 cr.]
This course covers the problems of testing of Ultra Large Scale Integrated Circuits (ULSI), the design of circuits for testability, the design of built-in self-testing circuits, and the use of the IEEE Boundary Scan Standards. Topics include introduction to the testing process, fault modeling and detection, logic and fault simulation, testability measures, test generation for combinational circuits, test generation for sequential circuits, design for testability, built-in selftest, delay testing, current testing, ATPG-based logic synthesis, system test, and core-based design, and testing a system-on-a-chip (SOC).
Prerequisite: COE321 Logical Design.

COE732 Networks Security [3-0, 3 cr.]
This course is an introduction to network security, including developing an understanding of security engineering, cryptography, mechanisms to protect private communication over public networks, and techniques to protect networked computer systems. This course considers the technical, operational, and managerial issues of computer systems, and network security in an operational environment. The course will address the threats to computer security, including schemes for breaking security, and techniques for detecting and preventing security violations. Emphasis will be on instituting safeguards, examining the different types of security systems, and applying the appropriate level of security for the perceived risk.
Prerequisite: COE431 Computer Networks.

COE741 Artificial Intelligence [3-0, 3 cr.]
This course is an introduction to artificial intelligence concepts, heuristic search, clause form logic, knowledge representation, reasoning and inference, an overview of the computer vision, planning, natural language, Lisp, and Prolog. Subjects covered may include unification and resolution in first order logic, graph search algorithms, planning, game playing, heuristic classifiers, knowledge engineering, and uncertainty management.
Prerequisite: COE312 Data Structures and Algorithms.

COE742 Neural Networks [3-0, 3 cr.]
This course covers the construction and function of neurons, synaptic transmission and plasticity, the functional organization of the neural system, modeling and simulation of real neural networks, the most well-known ANN-architectures and algorithms for learning, methods for unsupervised learning, principles for neural network representation, hardware architectures for neural computations (neural chips and neural computers), examples of technical applications of ANN in areas like pattern recognition, combinatorial optimizations, diagnosis, and robotics.
Prerequisite: The consent of the Instructor.

COE752 Design and Analysis of Algorithms [3-0, 3 cr.]
This course covers the time and space complexity of algorithms. It looks at the models of computation, the techniques for efficient algorithm design, and the effect of data structure choice on the efficiency of an algorithm, as well as the divide and conquer techniques, greedy methods, dynamic programming, amortized analysis, graph and network algorithms, NP-completeness, and selected advanced algorithms.
Prerequisite: The consent of the Instructor.

COE753 Heuristic Optimization [3-0, 3 cr.]
This course covers the basic heuristic optimization techniques in computing. This course describes a variety of heuristic search methods including serial simulated annealing, Tabu search, genetic algorithms, ant algorithms, derandomized evolution strategy, and random walk. Algorithms will be described in serial as well as in parallel fashion. Students can select application projects from a range of application areas. The advantages and disadvantages of heuristic search methods, for both serial and parallel computation, are discussed in comparison to other optimization algorithms.

COE754 Automata Theory and Formal Languages [3-0, 3 cr.]
This course covers the Finite Automata and regular expressions, context-free grammars, pushdown Automata, properties of context-free languages, Turing machines, undecidability, computational complexity, and P and NP problems.
Prerequisite: The consent of the Instructor.

COE898 Project [3-0, 3 cr.]
This design course integrates various areas of electrical, and computer, engineering into a real design project. Design reviews, and a final oral presentation with a written report, are required.
Prerequisites: 15 graduate credits, and the consent of the Instructor.

COE899 Thesis [6-0, 6 cr.]
This is a Master’s Thesis research, under the direction of a Faculty member.
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ELE733 Mobile Communication Systems [3-0, 3 cr.]
This course covers the modulation techniques for mobile radio, equalization, diversity, and channel coding, speech coding, multiple access techniques for wireless communications, wireless networking, and wireless systems and standards.
Prerequisites: ELE732 Wireless Communication Systems or Telecommunication Systems.

ELE538 Noise in Communication Systems [3-0, 3 cr.]
This course covers the physical noise sources, noise calculations in communication systems, stochastic processes, and communication systems performance in the presence of noise.
Prerequisite: ELE537 Communication Systems, GNE331 Probability and Statistics, and COE321 Logical Design.

ELE544 Feedback Control [3-0, 3 cr.]
This course covers the frequency-response analysis, control systems design by frequency response, PID controls, and an introduction to robust control.
Prerequisite: ELE442 Control Systems.

ELE731 Optical Fiber Communications [3-0, 3 cr.]
This course covers the waveguiding in optical fibers, fiber losses including attenuation, dispersion and nonlinearities, noise, receiver and transmitter design, link analysis, introduction to erbium-doped amplifiers, and time- and wavelength-division-multiplexed networks.
Prerequisite: The consent of the Instructor.

ELE732 Wireless Communication Systems [3-0, 3 cr.]
This course covers the evolution of the mobile radio communications including 2G, 2.5G and 3G, cellular concept, and the mobile radio propagation, including large-scale path loss, and small-scale fading and multipath.
Prerequisite: ELE337 Communication Systems.

ELE742 Linear Systems [3-0, 3 cr.]
This course covers the canonical realization of transfer functions, state observability and controllability, state feedback and asymptotic observers, reduced order observers, and regulator design.
Prerequisite: ELE442 Control Systems.

ELE751 Digital Signal Processing [3-0, 3 cr.]
This course is an introduction of signal processing of continuous and discrete signals, the family of Fourier transforms, including the Discrete Fourier Transform (DFT), the development of Fast Fourier transform (FFT), signal sampling and reconstruction, design and analysis of digital filters, and correlation and spectral estimation.
Prerequisite: ELE430 Signals and Systems.

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ELE752 Stochastic Processes and Applications [3-0, 3 cr.]
This course covers the topics of correlations and spectra, mean-square calculus, stationary processes, and sequences, and estimation theory.
Prerequisites: GNE331 Probability and Statistics, and ELE430 Signals and Systems.

ELE753 Reliability Evaluation of Engineering Systems [3-0, 3 cr.]
This course covers the basic reliability concepts, elements of probability and statistical theory, application of important distributions, reliability in series, parallel and complex systems, application of Markov chains in the evaluation of repairable system reliability, application of Markov processes for reliability evaluation of complex systems, and the utilization of Monte Carlo simulation in basic system reliability evaluation.
Prerequisite: GNE331 Probability and Statistics.

Special topics [3-0, 3 cr.]
This course covers the topics of current interest selected by the faculty.
Prerequisites: The consent of the Instructor.
DEPARTMENT OF INDUSTRIAL & MECHANICAL ENGINEERING

The Department of Industrial & Mechanical Engineering offers the following degree programs:

UNDERGRADUATE PROGRAMS

1. Bachelor of Engineering (B.E.) in Industrial Engineering
2. Bachelor of Engineering (B.E.) in Mechanical Engineering
3. Bachelor of Science in (B.S.) in Industrial Engineering

GRADUATE PROGRAMS

Master of Science in (M.S.) in Industrial Engineering and Engineering Management.

BACHELOR OF ENGINEERING IN INDUSTRIAL ENGINEERING

Industrial growth has created unusual opportunities for industrial engineers in Lebanon, and the Region. Automation, and the emphasis on increased productivity, coupled with higher complexity in systems’ engineering, is resulting in a greater demand for engineering graduates with a broad interdiscipli- nary background. This Program prepares students for industrial practice in such areas as: product design, process design, plant operation, production control, quality control, facilities planning, work system analysis and evaluation, and economic analysis of operational systems. Students are trained to apply engineering principles in solving problems encountered in environments, and situations, where a quantitative basis for decision-making is needed. Six credits of Professional experience are also included in the Summer of the Third year. To give students an opportunity to integrate classroom instruction with practical work experience as a part of their academic program.

The Industrial Engineering Program requires the completion of 151 semester hours, including the 67 credits of the common Pre-Engineering Program. While the Program is credit based, a typical sched- ule, over a four year period, including Summer modules, is listed below. Students may select to take these courses over a longer period of time.

Mission

The Industrial Engineering Program strives to support the Mission of the School, by providing students with a solid, and contemporary, Industrial Engineering curriculum that prepares them for successful careers in Industrial Engineering, and Management, as well as Graduate studies.

Educational Objectives

The purpose of the Industrial Engineering Program is to graduate students with the skills, methods, and tools to:

a. Pursue successful professional careers, in a wide range of areas, such as manufacturing, logistics, transportation, health care, engineer- ing management, or advanced Graduate studies.

b. Engage in teamwork, problem solving, and effective communication with others.

c. Design, analyze, and improve integrated sys- tems of people, materials, information, or facili- ties, for the purpose of improving, or sustaining, productivity, quality, or other desired needs.

d. Design and implement plans for the efficient management of projects.

e. Enable organizations to make optimal use of their resources, and optimal decisions under uncertainty.

f. Serve the public and private sector organiza- tions, by initiating, and managing, change, and to act as promoters of continuous improvement.

LEARNING OUTCOMES

Graduates of the Industrial Engineering Program will acquire the following skills:

a. The ability to apply knowledge of mathe- matics, science, and engineering.

b. The ability to design and conduct experiments, as well as to analyze and interpret data.

c. The ability to design, analyze, and improve processes and integrated systems of people, materials, information, and facilities, for the purpose of improving or sustaining productivity, quality, or other desired needs.

d. Interpersonal and social skills necessary to function in a multidisciplinary team.

e. The ability to identify, to formulate, and to solve, industrial and operations engineering problems.

f. An understanding of one’s professional and ethical responsibility.

g. The ability to communicate effectively.

h. A broad education, necessary to understand the impact of engineering solutions in a social context.

i. Recognition of the need, and the ability, to engage in life-long learning.

j. Knowledge of contemporary issues.

k. The ability to use modern techniques and tools that are necessary for the industrial engineer- ing practice.

MAJOR REQUIREMENTS

FIRST YEAR

Fall Semester (17 credits)

CHM201 Chemical Principles
COE201 Computer Proficiency
ENG202 Sophomore Rhetoric
MEE220 Engineering Graphics
MTH201 Calculus I
CIE200 Statics

Spring Semester (16 credits)

ARA203-3- Arabic Language / Literature
——— Liberal Arts Curriculum Elective
ETH201 Moral Reasoning
MTH304 Differential Equations
MTH206 Calculus IV
MEE241 Dynamics

Summer Module I (6 credits)

INE333 Engineering Analysis I
——— Liberal Arts Curriculum Elective
——— Summer Module II (4 credits)
INE331 Probability and Statistics
PED 2- Physical Education

SECOND YEAR

Fall Semester (17 credits)

COE211 Computer Programming
INE302 Linear Programming
INE320 Engineering Economy I
INE350 Simulation
MEE321 Material Properties and Processes
HLT201 Basic Health

Spring Semester (16 credits)

——— Liberal Arts Curriculum Elective
ELE305 Introduction to Electrical Engineering
INE345 Production Control
INE362 Production Processes and Machinery
INE363 Production Processes and Machinery Lab
MEE401 Energy Systems

Summer Module I (5 credits)

ENG203 Fundamentals of Oral Communication
GNE301 Professional Communication

Summer Module II (3 credits)

——— Liberal Arts Curriculum Elective
GNE333 Engineering Analysis I
——— Summer Module II (4 credits)

THIRD YEAR

Fall Semester (15 credits)

INE345 Production Control
INE410 Motion and Time Study
INE414 Human Factors in Engineering
INE442 Quality Control I
INE407 Network Flow
INE440 Advanced Statistics

Spring Semester (15 credits)

INE434 Facilities Planning and Layout
INE443 Quality Control II
INE436 Materials Handling
——— Liberal Arts Curriculum Elective
——— Technical Elective

Summer Module I (6 credits)

INE498 Professional Experience

Summer Module II (6 credits)

——— Liberal Arts Curriculum Elective
### COURSE DESCRIPTIONS

**INE302 Linear Programming [3-0, 3 cr.]**  
This course covers the formulation of linear programming problems, simplex method, duality, and sensitivity analysis.  
Prerequisite: GNE333 Engineering Analysis I.

**INE320 Engineering Economy I [3-0, 3 cr.]**  
This course covers equivalence and interest formulae, real world transactions, present worth analysis, annual equivalent worth, rate of return analysis, depreciation, inflation, and cost/benefit ratio.  
Prerequisite: Sophomore standing.

**INE345 Production Control [4-0, 4 cr.]**  
This course covers forecasting, capacity planning, aggregate planning, line balancing, and financial analysis.  
Prerequisite: INE302 Linear Programming, COE221 Computer Programming, and GNE331 Probability and Statistics.

**INE350 Simulation [3-0, 3 cr.]**  
This course covers random number generation, random variety generation, components of discrete event simulation, learning simulation software, and the simulation of simple systems: queuing, inventory, manufacturing, QC, transportation, layout.  
Prerequisite: GNE331 Probability and Statistics, and COE211 Computer Programming.

**INE362 Production Processes and Machinery [3-0, 3 cr.]**  
This course covers metal machining, cutting tools technology, and thermal cutting processes, machining operations and machine tools, abrasive processes and joining and assembly processes.  
Prerequisite: MEE321 Material Properties and Processes.

**INE363 Production Processes and Machinery Lab [0-3, 1 cr.]**  
This course entails laboratory experiments in production processes, and machinery.  
Concurrent with INE362 Production Processes and Machinery.

**INE402 Optimization [3-0, 3 cr.]**  
This course covers queuing theory and models, linear programming, integer programming, transportation/allocation, assignment, inventory, annealing, networks, dynamic programming, forecasting, and simulation techniques.  
Prerequisite: GNE333 Engineering Analysis I.

**INE407 Network Flow [3-0, 3 cr.]**  
This course covers networks, shortest/longest path, decision trees, and network flow.  
Prerequisite: INE302 Linear Programming or INE402 Optimization.

**INE410 Motion and Time Study [3-0, 3 cr.]**  
This course covers graphic tools and operation analysis, worker and machine relationship, motion study and time study, performance rating allowances, standard data, work sampling, and an overview of the ISO standards.  
Prerequisite: Fourth year standing.

### FOURTH YEAR

**Fall Semester (15 credits)**
- INE527 Project Scheduling 3
- INE548 Machine Scheduling 3
- INE544 Inventory Analysis 3
- INE591 Project I 3  
  — Technical Elective 3

**Spring Semester (16 credits)**
- INE506 Decision Analysis 3
- INE504 Stochastic Processes 3
- INE551 Advanced Simulation 4  
  — Technical Elective 3  
  — Technical Elective 3

### TECHNICAL ELECTIVES
- GNE334 Engineering Analysis II 3
- INE415 Occupational Safety 2
- INE529 Project Contracting 3
- INE502 Integer Programming 3
- INE503 Nonlinear Optimization 3
- INE521 Engineering Economy II 3
- INE563 CAD/CAM 3
- INE592 Project II 3
- INE599 Topics in Industrial Engineering 3

**Any other technically related course approved by the Department.**
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INE414 Human Factors in Engineering [3-0, 3 cr.]
This course covers information input and processing, auditory and visual and tactual displays, motor skills, human factors in systems design, physical work and MMH, hand tools and devices, work place design, illumination, and climate and noise considerations.
Prerequisite: Fourth year standing.

INE415 Occupational Safety* [2-0, 2 cr.]
This course covers eliminating and controlling hazards, system safety, expert systems, and accident reconstruction methodologies.
Prerequisite: INE410 Motion and Time Study, INE414 Human Factors in Engineering

INE434 Facilities Planning and Layout [4-0, 4 cr.]
This course covers process, product, and schedule design, determining activity relationships and space requirements, mathematical layout models, and computerized layout algorithms, location and assignment models, storage spaces and warehouse design, design of non-manufacturing facilities, airport design, and evaluation of alternative design.
Prerequisite: INE302 Linear Programming, INE345 Production Control

INE436 Materials Handling [3-0, 3 cr.]
This course covers materials handling equipment, the selection and design of material handling systems, simulation, and interface with facilities layout.
Prerequisite: INE302 Linear Programming, and INE350 Simulation, recommended to be taken concurrently with INE434 Facilities Planning and Layout.

INE440 Advanced Statistics [3-0, 3 cr.]
This course covers single factor experiments, randomized blocks, Latin squares, introduction to factorial designs, 2k factorial blocking and confounding, and forecasting.
Prerequisite: GNE331 Probability and Statistics

INE442 Quality Control I [3-0, 3 cr.]
This course covers the modeling process quality, inferences about process quality, statistical process control, types of control charts, acceptance sampling, and process capability analysis.
Prerequisite: GNE331 Probability and Statistics, and INE345 Production Control.

INE443 Quality Control II [1-2, 2 cr.]
This course covers application of SPC tools to control process quality in a real manufacturing setting, and the introduction to TQM/ISO standards.
Prerequisite: INE440 Advanced Statistics, and INE442 Quality Control I.

INE498 Professional Experience [0-6, 6 cr.]
This course covers professional experience, through training in the execution of real-life engineering projects.
Prerequisite: Fifth Year standing, and the consent of the Instructor.

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INE502 Integer Programming* [3-0, 3 cr.]
This course covers integer programming, and general search techniques.
Prerequisite: INE302 Linear Programming or INE402 Optimization.

INE503 Nonlinear Optimization* [3-0, 3 cr.]
This course covers nonlinear/continuous optimization methods.
Prerequisite: INE302 Linear Programming or INE402 Optimization.

INE504 Stochastic Processes [3-0, 3 cr.]
This course covers the Markov decision processes, and chains stochastic processes.
Prerequisite: GNE331 Probability and Statistics.

INE506 Decision Analysis [3-0, 3 cr.]
This course covers decision analysis, game theory, Bayesian decision theory, and the utility theory.
Prerequisite: GNE331 Probability and Statistics.

INE521 Engineering Economy II* [3-0, 3 cr.]
This course deals with the uncertainty, break-even analysis, sensitivity analysis, probabilistic risk analysis, and accounting principles.
Prerequisite: INE320 Engineering Economy I, and GNE331 Probability and Statistics.

INE527 Project Scheduling [3-0, 3 cr.]
This course covers the basic critical path planning and scheduling, with arrow and precedence networks, introduction to resource leveling, and least cost scheduling, including time-cost tradeoff analysis and schedule control.
Prerequisite: Fourth year standing.

INE529 Project Contracting [3-0, 3 cr.]
This course covers construction contracting for contractors, owners, and engineers. (1) Industry structure, (2) Types of contracts and delivery systems of construction, (3) Planning, estimating, quantity takeoff and pricing, labor and equipment estimate, and (4) Proposal preparation, and students use of contract documents to prepare detailed estimates.
Prerequisite: Fourth year standing.

INE544 Inventory Analysis [3-0, 3 cr.]
This course covers continuous/periodic/deterministic/stochastic inventory models, materials requirements planning, just-in-time production systems, assembly systems, and flexible manufacturing distribution systems.
Prerequisite: GNE331 Probability & Statistics, and INE345 Production Control.

INE548 Machine Scheduling [3-0, 3 cr.]
This course covers basic single machine problem, flow shop scheduling with setup cost, and vehicle routing.
Prerequisite: INE302 Linear Programming, and INE345 Production Control.

* This is an elective course and it may be offered at irregular intervals.
IN551 Advanced Simulation [4-0, 4 cr.]
This course covers the analysis of simulation data, input and output, validation and verification of system design, comparing alternative system configurations, simulation of complex systems, and case studies.
Prerequisite: INE350 Simulation, Fifth Year standing.

IN563 CAD/CAM [3-0, 3 cr.]
This course covers the use of computer-aided design software packages, including systems for computer-aided drafting, solid modeling, finite element analysis, and computer-aided manufacturing, and design projects including fabrication of physical prototypes generated with numerically controlled machines.
Prerequisite: INE362 Production Processes and Machinery.

INE591 Project I [3-0, 3 cr.]
This course covers selected engineering project, using acquired technical knowledge, formal report, and presentation.
Prerequisite: Final year standing, and the Consent of the Instructor.

INE592 Project II [3-0, 3 cr.]
This course covers advanced engineering project, using acquired technical knowledge, formal report, and presentation.
Prerequisite: Final year standing, and the Consent of the Instructor.

INE599 Topics in Industrial Engineering [1-3, 3 cr.]
This course covers the treatment of new development, in various areas of industrial engineering.
Prerequisite: Fifth Year standing, and the Consent of the Instructor.

PROGRAM OUTCOMES
- The ability to apply knowledge of mathemetics, science, and engineering.
- The ability to design and conduct experiments, as well as to analyze and interpret data.
- The ability to apply elements of design, process, to meet the desired needs, within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- The ability to function on multi-disciplinary teams.
- The ability to identify, formulate, and to solve engineering problems.
- An understanding of one’s professional and ethical responsibility.
- The ability to communicate effectively.
- A broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- Recognition of the need for, and the ability to, engage in life-long learning.
- Knowledge of contemporary issues.
- The ability to use the techniques, skills, and modern engineering tools, necessary for the engineering practice.

EDUCATIONAL OBJECTIVES
- Graduates of the Mechanical Engineering Program are to:
  a. Develop the students’ professional skills for successful careers and long-life learning. Students will also be prepared for graduate school to further their education.
  b. Provide students with a strong mathematical background, along with scientific and mechanical engineering principles, and modern techniques, tools, and practices, needed for solving mechanical engineering problems.
  c. Develop the ability to identify, and formulate, real world engineering problems in a global and societal context, with high standards of ethical and professional responsibilities.

LEARNING OUTCOMES
- The objectives of the Mechanical Engineering Program are to:
  a. The ability to apply knowledge of mathematics, science, and engineering.
  b. The ability to design and conduct experiments, as well as to analyze and interpret data.
  c. The ability to apply elements of design, process, to meet the desired needs, within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
  d. The ability to function on multi-disciplinary teams.
  e. The ability to identify, formulate, and to solve engineering problems.
  f. An understanding of one’s professional and ethical responsibility.
  g. The ability to communicate effectively.
  h. A broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
  i. Recognition of the need for, and the ability to, engage in life-long learning.
  j. Knowledge of contemporary issues.
  k. The ability to use the techniques, skills, and modern engineering tools, necessary for the engineering practice.

MISsION
- The Mission of the Mechanical Engineering Program is to provide a contemporary educational program that prepares students for successful careers, encompassing the desired skills for long-life learning. The Department is also committed to promoting research that leads to new scientific and educational ideas.
DEPARTMENT OF INDUSTRIAL & MECHANICAL ENGINEERING

MAJOR REQUIREMENTS

FIRST YEAR

Fall Semester (17 credits)
- CHM201 Chemical Principles [3-0, 3 cr.]
- COE201 Computer Proficiency [3-0, 3 cr.]
- ENG202 Sophomore Rhetoric [3-0, 3 cr.]
- MEE220 Engineering Graphics [3-0, 3 cr.]
- MTH201 Calculus III [3-0, 3 cr.]
- CIE200 Statics [3-0, 3 cr.]

Spring Semester (17 credits)
- COE211 Computer Programming [3-0, 3 cr.]
- ETH201 Moral Reasoning [3-0, 3 cr.]
- MTH204 Differential Equations [3-0, 3 cr.]
- MTH206 Calculus IV [3-0, 3 cr.]
- MEE241 Dynamics [3-0, 3 cr.]

Summer Module I (6 credits)
- GNE333 Engineering Analysis I [3-0, 3 cr.]
- Liberal Arts Elective Course [3-0, 3 cr.]

Summer Module II (4 credits)
- GNE333 Probability and Statistics [3-0, 3 cr.]
- PDE2—Physical Education [2-0, 1 cr.]

SECOND YEAR

Fall Semester (16 credits)
- ARA2-3—Arabic Language / Literature [3-0, 3 cr.]
- ELE305 Introduction to Electrical Engineering [3-0, 3 cr.]
- MEE301 Thermodynamics [3-0, 3 cr.]
- MEE311 Fluid Mechanics [3-0, 3 cr.]
- MEE312 Fluid Mechanics Lab [1-0, 1 cr.]
- MEE321 Material Properties and Processes [3-0, 3 cr.]

Spring Semester (16 credits)
- MEE339 Instrumentation and Measurements [2-0, 2 cr.]
- MEE330 Energy Conversion [3-0, 3 cr.]
- MEE332 Strength of Material [3-0, 3 cr.]
- MEE341 Kinematics and Dynamics of Linkages [3-0, 3 cr.]
- MEE332 Production Processes and Machinery [3-0, 3 cr.]
- MEE333 Production Processes and Machinary Lab [1-0, 1 cr.]
- HLT201 Basic Health [1-0, 1 cr.]

Summer Module (5 credits)
- ENG203 Fundamentals of Oral Communication [3-0, 3 cr.]
- GNE301 Professional Communication [2-0, 2 cr.]

Summer Module II (3 credits)
- Liberal Arts Elective Course [3-0, 3 cr.]

THIRD YEAR

Fall Semester (17 credits)
- INE320 Engineering Economy I [3-0, 3 cr.]
- INE402 Optimization [3-0, 3 cr.]
- MEE442 Machine Dynamics [3-0, 3 cr.]
- MEE443 Machine Dynamics Lab [0-2, 2 cr.]
- MEE407 Internal Combustion Engines [3-0, 3 cr.]
- MEE408 Internal Combustion Engines Lab [1-0, 1 cr.]
- MEE445 Control Systems [3-0, 3 cr.]

Spring Semester (16 credits)
- MEE422 Mechanical Engineering Design [3-0, 3 cr.]
- MEE421 Finite Element Methods [3-0, 3 cr.]
- MEE403 Heat Transfer [3-0, 3 cr.]
- MEE404 Heat Transfer Lab [1-0, 1 cr.]
- Liberal Arts Elective Course [3-0, 3 cr.]
- Technical Elective [3-0, 3 cr.]

Summer Module II (6 credits)
- MEE498 Professional Experience [6-0, 6 cr.]

FOURTH YEAR

Fall Semester (13 credits)
- MEE515 Refrigeration and Air Conditioning [3-0, 3 cr.]
- MEE512 Thermofluids [3-0, 3 cr.]
- MEE591 Project I [3-0, 3 cr.]
- Technical Elective [3-0, 3 cr.]
- Liberal Arts Elective Course [3-0, 3 cr.]
- Project Scheduling/Contracting [3-0, 3 cr.]

Spring Semester (14 credits)
- MEE527/INE529 Project Scheduling/Contracting [3-0, 3 cr.]
- MEE590 Energy Audit [0-1, 1 cr.]
- Technical Elective [3-0, 3 cr.]
- Technical Elective [3-0, 3 cr.]

TECHNICAL ELECTIVES

GNE334 Engineering Analysis II [3-0, 3 cr.]
INE527/INES529 Project Scheduling/Contracting [3-0, 3 cr.]
MEE503 Power Plant Engineering [3-0, 3 cr.]
MEE505 Solar Systems [3-0, 3 cr.]
MEE513 Gas Turbines [3-0, 3 cr.]
MEE533 CAD/CAM [3-0, 3 cr.]
MEE543 Acoustics and Vibration Control [3-0, 3 cr.]
MEE592 Project II [3-0, 3 cr.]
MEE599 Topics in Mechanical Engineering [3-0, 3 cr.]

DEPARTMENT OF INDUSTRIAL & MECHANICAL ENGINEERING

COURSE REQUIREMENTS

MEE220 Engineering Graphics [2-4, 4 cr.]
This course covers basic engineering drawing, CAD proficiency, sketching, and schematics.

MEE241 Dynamics [3-0, 3 cr.]
This course covers kinematics, and kinetics of particles, systems of particles, and kinetics of rigid bodies.
Prerequisite: MTH201 Calculus III, and CIE200 Statics.

MEE301 Thermodynamics [3-0, 3 cr.]
This course covers the basic concepts of work and heat, systems and control volumes, pure substances, equation of state, first law for systems, steady flow energy equation, second law for systems and control volume, and entropy.
Prerequisite: Sophomore standing.

MEE302 Energy Conversion [3-0, 3 cr.]
This course covers the performance and design considerations of energy conversion systems, the design and performance problems involving steam, gas turbine, and combined cycle power plants, and the reciprocating and rotary engines.
Prerequisite: MEE301 Thermodynamics.

MEE311 Fluid Mechanics [3-0, 3 cr.]
This course covers fluid statics, analysis of fluid motion using the continuity, momentum, and energy, relationship, and the introduction to viscous flow.
Prerequisite: MEE241 Dynamics.

MEE312 Fluid Mechanics Lab [0-3, 3 cr.]
This course entails laboratory experiments in fluid mechanics.
Concurrent with MEE311 Fluid Mechanics.

MEE320 Strength of Materials [3-0, 3 cr.]
This course covers mechanical properties and behavior of stressed materials, stress analysis of beams, columns and shafts, statically indeterminate structures, plane stress and strain, and principal stresses.
Prerequisite: CIE200 Statics.

MEE321 Material Properties and Processes [3-0, 3 cr.]
This course covers the mechanical, and physical, properties of engineering materials (metals, ceramics, and polymers), which are explained through their structures. Topics include strength and ductility, crystal structures and defects, phases, heat treatment, manufacturing processes, and material economics.
Prerequisite: CHM201 Chemical Principles.

MEE332 Production Processes and Machinery [3-0, 3 cr.]
This course covers metal machining, cutting tools technology, and thermal cutting processes, machining operations, and machine tools, abrasive processes, and joining and assembly processes.
Prerequisite: MEE321 Material Properties and Processes.
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MEE333 Production Processes and Machinery Lab [0-3, 1 cr.]
This course entails laboratory experiments in production, processes, and machinery. 
Concurrent with MEE332 Production Processes and Machinery.

MEE341 Kinematics and Dynamics of Linkages [3-0, 3 cr.]
This course covers kinematics of mechanical devices, displacement, velocity and acceleration of linkages, cams and gear trains, and an introduction to synthesis, design, and computer problems.
Prerequisite: MEE241 Dynamics, COE211 Computer Programming. 
Concurrent with MEE332 Production Processes and Machinery.

MEE390 Instrumentation and Measurements [1-3, 2 cr.]
This course covers data acquisition, design of experiments, and laboratory safety, selection of instruments for experiments, informal and formal report writing, statistics of large samples applied to fixed and dynamic response of instruments, and the use of instrumentation software.
Prerequisite: Third Year standing.

MEE401 Energy Systems [2-0, 2 cr.]
This course covers the energy, and its transformation, balance, and open/closed systems.
Prerequisite: Third Year standing.

MEE403 Heat Transfer [3-0, 3 cr.]
This course covers the transfer of heat by conduction, radiation and convection, and the analysis of steady state, and simple transient heat processes, and the evaporation, boiling, and condensing, heat transfer.
Prerequisites: MTH204 Differential Equations, MEE311 Fluid Mechanics, and COE211 Computer Programming.

MEE404 Heat Transfer Lab [0-3, 1 cr.]
This course entails laboratory experiments in heat transfer.
Concurrent with MEE403 Heat Transfer.

MEE407 Internal Combustion Engines [3-0, 3 cr.]
This course covers the principles, practice, and characteristics, of internal combustion engines, with laboratory demonstrations in engine testing, and performance.
Prerequisite: MEE302 Energy Conversion.

MEE408 Internal Combustion Engines Lab [0-3, 1 cr.]
This course entails laboratory experiments in internal combustion engines.
Concurrent with MEE407 Internal Combustion Engines.

MEE421 Finite Element Methods [3-0, 3 cr.]
This course covers the stiffness method, and the plane truss, element based on assumed displacement fields, the isoperimetric formulation, coordinate transformation, solids of revolution, and the bending of flat plates and shells.
Prerequisites: GNE333 Engineering Analysis I, and MEE320 Strength of Materials.

MEE422 Mechanical Engineering Design [3-0, 3 cr.]
This course covers application of engineering design process to the design of mechanical components, subsystems and machines, problem solving techniques, ethics, and patents.
Prerequisite: MEE320 Strength of Materials.

MEE442 Machine Dynamics [3-0, 3 cr.]
This course covers kinematics, and force analysis of machine and machine elements, balancing, critical speed, flywheel design, and dynamic measurement, and design and computer problems.
Prerequisite: MEE341 Kinematics and Dynamics of Linkages, and MTH204 Differential Equations.

MEE443 Machine Dynamics Lab [0-3, 1 cr.]
This course entails laboratory experiments in machine dynamics.
Concurrent with MEE442 Machine Dynamics.

MEE445 Control Systems [3-0, 3 cr.]
This course covers control system design of mechanical systems, emphasis on thermal, fluid, and motion, systems under feedback control, and classical control topics, including laplace transforms, system modeling, stability theory, and practical applications to professional practice.
Prerequisite: GNE333 Engineering Analysis I, MTH304 Differential Equations, and ELE201 Electrical Circuits I, or ELE305 Introduction to Electrical Engineering.
Concurrent with MEE442 Machine Dynamics.

MEE498 Professional Experience [0-6, 6 cr.]
This course covers professional experience through training in the execution of real-life engineering projects.
Prerequisite: Fifth Year standing, and the Consent of the Instructor.

MEE503 Power Plant Engineering* [3-0, 3 cr.]
This course covers steam and gas turbine power cycles, modern power plants, combined power plants, energy and availability analysis, economics of power generation, and design problems and field trips.
Prerequisites: MEE302 Energy Conversion, and MEE512 Thermo-fluids.

MEE505 Solar Systems [3-0, 3 cr.]
This course covers the solar energy resources, collector models, active DHW, and space heating systems, passive heating, utilizability, and design-chart method, and photovoltaic and wind systems.
Prerequisite: MEE403 Heat Transfer.

MEE512 Thermofluids [3-0, 3 cr.]
This course covers the analysis of the mechanics, and thermodynamics, of flowing compressible fluids, and the design of incompressible fluid flow and machinery.
Prerequisites: MEE403 Heat Transfer.

* This is an elective course and it may be offered at irregular intervals
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MEE513 Gas Turbines [3-0, 3 cr.]
This course covers the design and performance of stationary and propulsion gas turbines.
Prerequisite: MEE302 Energy Conversion.

MEE515 Refrigeration and Air-Conditioning [3-0, 3 cr.]
This course covers principles of vapor compression and absorption refrigeration, heat pumps, psychrometrics, principles of thermal comfort, and environmental aspects, determination of heating and cooling loads, and air-conditioning system design and analysis.
Prerequisite: MEE403 Heat Transfer.

MEE516 Refrigeration and Air-Conditioning Lab [0-3, 1 cr.]
This course entails laboratory experiments in refrigeration and air-conditioning. Concurrent with MEE515 Refrigeration and Air-Conditioning.

MEE533 CAD/CAM [3-0, 3 cr.]
This course covers the use of computer-aided design software packages, including systems for computer-aided drafting, solid modeling, and finite element analysis, and computer-aided manufacturing design projects, including fabrication of physical prototypes generated with numerically controlled machines.
Prerequisite: MEE332 Production Processes and Machinery.

MEE543 Acoustics and Vibration Control [3-0, 3 cr.]
This course covers the acoustic momentum, energy and intensity propagation, reflection and absorption, effects of the physical properties, transmission of sound in real media, forced and free vibration systems, with one or more degrees of freedom, vibration isolation, and transmission applied to problems of rotating, and reciprocating, machinery, and design problems on vibration isolation systems, and absorbers.
Prerequisite: MEE442 Machine Dynamics.

MEE590 Energy Audit [2-0, 2 cr.]
This course covers the survey of energy sources, cost analysis, alternatives, environmental issue, audit techniques, and technical reporting.
Prerequisite: Fourth year standing.

MEE591 Project I [3-0, 3 cr.]
This course covers selected engineering project, using acquired technical knowledge, formal report, and presentation.
Prerequisite: Final year standing, and the consent of the Instructor.

MEE592 Project II [3-0, 3 cr.]
This course covers advanced engineering project, using acquired technical knowledge, formal report, and presentation.
Prerequisite: Final year standing, and the consent of the Instructor.

MEE599 Topics in Mechanical Engineering [1-3, 3 cr.]
This course covers the treatment of new development in various areas of mechanical engineering.
Prerequisite: Fifth Year standing, and the consent of the Instructor.

PACKAGING MINOR (PM)
The Packaging Minor at LAU is an interdisciplinary field in which scientific and design principles are applied to analyze, develop, and produce packages that inform, communicate, advertise, contain, protect, preserve, and transport a product. The Packaging Minor includes the study of products, package materials, materials behavior, structures, methods, machinery, and most common types of processes used for package design, production, and transportation.

In order to maximize the comprehension of this study field by the student, the Minor includes laboratory and studio courses to provide the student with hands on experience.

Educational Objectives
The objective of the Packaging Minor is to capitalize on the theories and skills learned in other disciplines, preparing students for success as packaging professionals in positions ranging from, technical research and development, to design, production, and sales.

Learning Outcomes
a. The ability to apply scientific and design principles to analyze, develop, and produce, packages that protect, preserve, and transport, a product.
b. The ability to apply design principles to inform, to communicate, and to advertise a product.
c. Knowledge of materials, and materials’ behavior, structures, methods, machinery, and the most common types of processes used for package design, production, and transportation.
d. Hands-on experience in testing, analyzing, and designing packages.

MAJOR REQUIREMENTS
The Packaging Minor requires the completion of 18 credits of Packaging courses, consisting of 12 required Core credits, and six Elective credits.

Required Core Courses (12 credits)
- PKG/INE570 Introduction to Packaging 3
- PKG/INE572 Packaging Dynamics and Permeation 3
- PKG/INE573 Packaging Types and Processes 3
- PKG/INE580 Packaging Design 3

Elective Courses (6 credits)
- Design Electives
  - PKG/INE582 Structural Packaging 3
  - PKG/INE584 Branding Packaging 3
  - PKG/INE586 Computer Graphics for Packaging 3
  - PKG/INE588 Packaging Applications 3
  - PKG/INE589 Special Topic Course in Packaging Design 3
- Engineering Electives
  - PKG/INE574 Paper and Paperboard Packaging 3
  - PKG/INE575 Corrugated Packaging 3
  - PKG/INE576 Rigid Plastic Packaging 3
  - PKG/INE577 Packaging for Food, Drug and Cosmetics 3
  - PKG/INE578 Food Preservation Packaging 3
  - PKG/INE579 Special Topic Course in Packaging Engineering 3

Note: Students with Engineering or Design Emphasis are advised to take the two electives in the respective area of Emphasis.
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COURSE DESCRIPTIONS

PKG/INE570 Introduction to Packaging [3-0, 3 cr.]
This course will present an overview of the history of packaging, its functions, materials, and development, and an overview of packaging design, processing systems, and testing. The historical, social, technological, and environmental impact, as well as the legal aspects of packaging will also be discussed. Examples will include product/package combinations, and the impact these choices make on the market success of a product, and the important role of proper packaging design in the reduction of solid waste, and sustainable development.
Prerequisite: Second Year standing.

PKG/INE572 Packaging Dynamics and Permeation [2-3, 3 cr.]
This course is an introduction to the mechanics, stresses and strains, shock, vibration, compression, temperature, humidity, friction and pressure, as factors affecting the design of packaging, including the design of packages to protect against these hazards. Damage boundary, product fragility, barrier properties against permeation will be explored from the point of view of the packaging industry.
Prerequisite: PHY211 Statics or ARC311 Building Systems.

PKG/INE573 Packaging Types and Processes* [3-0, 3 cr.]
This course is a study of the operation and performance of modern packaging systems (e.g. die cutting, blister packaging, blow molding, injection molding, etc.). Topics include equipment selection and specification, design and implementation of packaging lines in production, assessing and improving operating performance, process control and instrumentation, as well as overall environmental friendliness of the process, its sustainability and amenability to reuse, recycling, and total waste reduction.
Prerequisite: PKG/INE570 Introduction to Packaging.

PKG/INE580 Packaging Design [1-4, 3 cr.]
This course covers the application of graphic skills on 3-D representations, and investigation of new materials and methods in designing product containers. Projects include designing a line of products under the same brand name, constructing die cut boxes, labels, and creating experimental packages.
Prerequisite: Second Year standing.

PKG/INE574 Paper & Paperboard Packaging [3-0, 3 cr.]
This course is a study of the sources of cellulose fiber, methods of extraction, the effect of different fibers on the finished product, additives, conversion to paper and paperboard, identify paper types, surface finishes, and the design features and performance of basic paper characterization tests.
Prerequisite: PKG/INE570 Introduction to Packaging.

PKG/INE575 Corrugated Packaging* [3-0, 3 cr.]
This course is a study of distribution packaging which includes: product design factors affecting transportation, transportation hazards, protective package design, modern computer aids to shipping package design, regulations, and the methods and significance of various pre-shipment test procedures.
Prerequisite: PKG/INE570 Introduction to Packaging.

PKG/iNE577 Packaging for Food, Drug, and Cosmetics* [3-0, 3 cr.]
This course covers the physical and chemical properties of packaging materials including metals, glass, paper and polymers, in relation to their use in food, drugs, and cosmetics packaging applications. The major technical, safety, and legislative, areas critical to the successful application of packaging technologies will be reviewed, including a brief exploration of the historical aspects of food, drug, and cosmetics packaging in order to provide a perspective on modern packaging industries and their associated regulatory measures.
Prerequisite: PKG/INE570 Introduction to Packaging.

PKG/iNE578 Food Preservation Packaging [3-0, 3 cr.]
This course covers the study of the process of food deterioration, and the packaging methods that are used to control these processes, in order to extend useful shelf life of certain products.
Prerequisite: PKG/INE570 Introduction to Packaging.

PKG/iNE579 Special Topic Course in Packaging Engineering [3-0, 3 cr.]
This course will address the current issues in packaging engineering, and the trends in the market, with lectures by invited guests from the field.
Prerequisite: The consent of the Instructor.

PKG/iNE580 Structural Packaging* [1-4, 3 cr.]
This course will revolve around the creation and manipulation of basic shapes, in order to generate new structures for package designs. Issues of structures’ functional relevance and appropriateness, will be investigated, in addition to the emphasis on the notion of the packaging as a work of art.
Prerequisite: PKG/iNE570 Introduction to Packaging.

PKG/iNE582 Computer Graphics for Packaging* [1-4, 3 cr.]
This course will cover the use of software tools used in the packaging industry. Students will design and develop a relational database. Commercial label design software will be used to create product labels, including bar codes. Spreadsheets and programming environment will be used to solve packaging/business related problems. 2D/3D design software will be used to develop packaging concepts, and generate working drawings.
Prerequisite: MEE220 Engineering Graphics or ARC251 Introduction to Computer Graphics or DES251 Introduction to Computer Graphics, or GRA251 Introduction to Computer Graphics.

PKG/iNE584 Package Branding* [1-4, 3 cr.]
This course will examine packaging in relation to the brand identity of a product. Students will be encouraged to explore new methods, and to bring fresh ideas to the concept of surface treatment and structure in the elaboration of the visual identity of a product.
Prerequisite: PKG/INE570 Introduction to Packaging.

PKG/iNE586 Computer Graphics for Packaging* [2-2, 3 cr.]
This course covers the major software tools used by professionals in the packaging industry. Students will design and develop a relational database. Commercial label design software will be used to create product labels, including bar codes. Spreadsheets and programming environment will be used to solve packaging/business related problems. 2D/3D design software will be used to develop packaging concepts, and generate working drawings.
Prerequisite: MEE220 Engineering Graphics or ARC251 Introduction to Computer Graphics or DES251 Introduction to Computer Graphics, or GRA251 Introduction to Computer Graphics.

* This is an elective course and may be offered at irregular intervals.
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PKG/INE588 Packaging Applications* [1-4, 3 cr.]
This course provides the students the opportunity to apply the knowledge gained through actual projects, with a follow up on the production of packages in the factory. Assignments will address the functionality of packaging from product identification to its entire appeal, stacking, display and protection.
Prerequisites: PKG/INE573 Packaging Types and Processes, and PKG/INE572 Packaging Dynamics and Permeation, or PKG/INE580 Packaging Design.

PKG/INE589 Special Topic Course in Packaging Design* [3-0, 3 cr.]
This course will address the current issues in packaging design, and the trends in the market, with lectures by invited guests from the field.
Prerequisite: Consent of the Instructor.

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GRADUATE PROGRAM

MASTERS OF SCIENCE IN INDUSTRIAL ENGINEERING AND ENGINEERING MANAGEMENT

The Master of Science in Engineering in Industrial Engineering and Engineering Management Program responds to a need, at the country level, for engineers that can manage and improve integrated systems of people, materials, information, facilities, and technology. The Graduate Program in Industrial Engineering and Engineering Management, with emphasis in Engineering Management, draws on LAU’s substantial, and growing, experience in Undergraduate Industrial Engineering education, to provide engineers, coming from other engineering disciplines, with a significant opportunity to specialize in the management, and the optimization, of engineering systems.

The Graduate Program in Industrial Engineering and Engineering Management is essentially a hybrid Program that is built by combining specialized knowledge bases, leading to a non-traditional interdisciplinary education. The knowledge bases, referred to hereunder as concentrations areas, consist in part of elective Graduate-level courses from Industrial, Mechanical, and Civil Engineering Programs, and Graduate courses from Computer Science, Economics, Business, and International Affairs Graduate Programs.

Mission
The Mission of the Graduate Program in Industrial Engineering and Engineering Management is to capitalize on the skills and theories learned in disciplines other than Industrial Engineering, to uniquely prepare students for successful engineering management careers.

Educational Objectives
The objectives of the Graduate Program in Industrial Engineering and Engineering Management are to:
a. Provide engineers, coming from other engineering disciplines, with a significant opportunity to specialize in the management and optimization of engineering systems.
b. Introduce engineers to the state of the art tools and methods used in the design, management, or improvement, of integrated systems of people, materials, facilities, information, and technology.
c. Provide students with a unique, non-traditional, interdisciplinary education that is tailored to the student’s professional needs and interests.

Learning Outcomes
The outcomes of the Graduate Program in Industrial Engineering and Engineering Management include:
a. The ability to use the knowledge of math and science to model, and to improve, complex integrated systems of people, materials, facilities or technology.
b. The broad knowledge that encompasses the fields of production systems and manufacturing, construction engineering and management, and finance and economics.
c. The ability to use data analysis, and optimization, for decision making.
d. The ability to provide support for systems engineering and project management.
e. The ability to function as a professional in the discipline.
f. The ability to grow through a life long acquisition of knowledge.
g. Advanced proficiency in the student-selected topics in optimization, production systems and manufacturing, infrastructure and construction, and management, or finance and economics.
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Admissions Requirements
The Program is open to applicants with B.E. or B.S. Degrees in the Engineering disciplines, other than in Industrial Engineering. Admission is granted, only, on a selective basis to students meeting the following minimum requirements. Applicants must have a Bachelor of Science in Engineering, or a Bachelor of Engineering, Degree from an accredited college or university, with a minimum general Grade Point Average (GPA) equivalent to 2.75, on a 4-point scale, or 2.75 in the Major.

Degree Requirements
The Graduate Program in Industrial Engineering and Management, with Emphasis in Engineering Management, consists of 30 credit hours, and leads to a Master of Science in Industrial Engineering and Management (Emphasis in Engineering Management).

In particular the Degree requirements are:
- At least 18 hours in Engineering courses.
- At least six hours from Optimization.
- At least six hours in Management.
- At least nine hours from Production Systems and Manufacturing, or Infrastructure and Construction Management.
- At least 3 hours from Finance and Economics.

The remaining courses may be taken from any of the following concentration areas:

CA_1: Optimization
CA_2: Production Systems and Manufacturing
CA_3: Infrastructure and Construction Management
CA_4: Finance and Economics
CA_5: Software

Transfer of Credits
B.E. Holders can transfer up to six credits from their B.E. Degree, provided that the student has scored at least a grade of “B” on each of these courses. Transfer of credits is governed by the Graduate Program Rules and Regulations.

Course Listing by Concentration Areas
Courses eligible for Graduate credit under this Program are grouped into five concentration areas:

CA_1: Optimization
- INE700 Advanced Statistics 3
- INE701 Linear Programming 3
- INE702 Integer Programming 3
- INE703 Dynamic Programming 3
- INE704 Stochastic Processes 3
- INE705 Non-linear Programming 3
- INE706 Decision Analysis 3
- INE707 Network Flow 3
- INE708 Queuing Theory and Applications 3
- INE709 Advanced Stochastic Processes 3
- INE711 Advanced Simulation 3
- INE810 Special Topics in Optimization 3

CA_2: Production Systems and Manufacturing
- INE742 Industrial Quality Control 3
- INE743 Reliability Evaluation of Engineering Systems 3
- INE744 Inventory Analysis 3
- INE745 Facilities Planning and Layout 3
- INE746 Materials Handling 3
- INE748 Machine Scheduling 3
- INE749 Transportation and Supply Chain Systems 3
- INE761 Computer Aided Design/Computer Aided Manufacturing 3
- INE762 Analysis of Automated Manufacturing Systems 3
- INE763 Advanced Information Technology for Industrial & Manufacturing Engineering 3
- INE764 Time Series Control & Process Adjustment 3
- INE840 Special Topics in Production Systems & Manufacturing 3

CA_3: Infrastructure and Construction Management
- CIE761 Transportation Engineering I 3
- CIE762 Transportation Engineering II 3
- CIE785 Risk and Natural Hazard Management 3
- CIE786 Highway Design and Management 3
- CIE787 Concrete and Steel Construction 3
- CIE788 GIS and Remote Sensing 3
- CIE790 Construction Methods 3
- INE721/CIE789 Cost Engineering and Control 3
- INE722/CIE782 Infrastructure Management 3
- INE724/CIE784 Quality Management Systems 3
- INE727 Project Scheduling 3
- INE729 Project Contracting 3
- INE820 Special Topics in Infrastructure & Construction Management 3

CA_4: Finance and Economics
- BUS811 Business Economics 3
- BUS821 Financial Accounting 3
- BUS836 Modern Portfolio Management 3
- BUS837 International Business 3
- BUS861 Financial Management 3
- INA831 International Political Economy 3
- INE771 Financial Engineering 3
- INE772 Advanced Financial Engineering 3
- INE781 Engineering Economy II 3
- INE870 Special Topics in Finance & Economics 3

CA_5: Software
- COE716/CSC723 Knowledge-Based Systems 3
- COE717 Parallel Programming and Cluster Workstations 3
- COE718/CSC450 Computer Graphics 3
- COE741/CSC460 Artificial Intelligence 3
- COE742 Neural Networks 3
- COE752/CSC711 Design and Analysis of Algorithms 3
- COE753/CSC714 Heuristic Optimization 3
- CSC475 Advanced Topics in Databases 3

Other Courses
- INE800 Project Course 3
- INE801 Special Topic Courses 3
- INE899 Thesis 6
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COURSE DESCRIPTIONS

INE700 Advanced Statistics [3-0, 3 cr.]
This course covers single factor experiments, randomized blocks, Latin squares, introduction to factorial designs, 2k factorial blocking and confounding, and forecasting.

INE701 Linear Programming [3-0, 3 cr.]
This course covers the formulation of linear programming problems, simplex method, and duality and sensitivity analysis.

INE702 Integer Programming [3-0, 3 cr.]
This course covers integer programming, and general search techniques.

INE703 Dynamic Programming [3-0, 3 cr.]
This is a course on the theory and practice of dynamic programming. Topics covered in Deterministic DP: Shortest path algorithms including label setting and correcting, A* and solution horizon approaches, with applications in resource allocation, knapsack problem, capacity expansion, equipment replacement, and traffic routing; infinite decision trees and dynamic programming networks with cycles. Topics covered in Stochastic DP are stochastic shortest path problem and Markov decision processes. Applications include asset divesture, capital budgeting, portfolio selection, inventory control, systems reliability, and maximization of expected utility with constant risk posture.
Prerequisites: INE701 Linear Programming.

INE704 Stochastic Processes [3-0, 3 cr.]
This course covers Markov decision processes, and chains stochastic processes.

INE705 Non-linear Programming [3-0, 3 cr.]
This course covers nonlinear/continuous optimization methods.

INE706 Decision Analysis [3-0, 3 cr.]
This course covers decision analysis, game theory, Bayesian decision theory, and utility theory.

INE707 Network Flow [3-0, 3 cr.]
This course covers networks, shortest/longest path, decision trees, and network flow.

INE708 Queuing Theory and Applications [3-0, 3 cr.]
This course is an introduction to congestion and related stochastic models. Topics include birth and death models, measures of performance, Little’s Law, conservation law, PASTA, work in system, service disciplines and priorities, regenerative processes, stability and stationary distributions, approximations and bounds. Examples from telecommunications, production, inventory, and computer science, are covered.

INE709 Advanced Stochastic Processes [3-0, 3 cr.]
This course is an introduction to martingales in continuous time. Brownian motion: construction, basic properties, sample paths. Stochastic integration, Ito’s rule, and applications, are discussed. The course is an introduction to stochastic differential equations and diffusion processes. Applications to financial economics: option pricing, and consumption/investment problems, are also covered.
Prerequisites: INE704 Stochastic Processes.

INE711 Advanced Simulation [3-0, 3 cr.]
This course covers an analysis of simulation data; input and output, validation and verification of system design, comparing alternative system configuration, simulation of complex systems, and case studies.

INE721 Cost Engineering and Control [3-0, 3 cr.]
This course covers cost engineering for construction organizations, projects, and operations, it also covers construction financing, break-even, profit, and cash flow analyses, capital budgeting, equipment cost, and procurement decisions. Construction, financial accounting, cost accounting, cost control systems, and databases, as well as cost indices, parametric estimates, unit price proposals, measuring work, and settling claims are also covered.
Prerequisites: INE729 Project Contracting.

INE722 Infrastructure Management [3-0, 3 cr.]
This course covers the general methods of engineering systems management, and the different types of infrastructure. The course analyzes possible financing, and engineering, solutions and alternatives, and the overall management during the life cycle of the project.

INE724 Quality Management Systems [3-0, 3 cr.]
This course is an introduction to quality management systems, ISO 9000, 14000, Total Quality Management, and the applications of QMS to the engineering, and management, of large projects, systems, and organizations.
Prerequisite: Consent of the Instructor.

INE727 Project Scheduling [3-0, 3 cr.]
This course covers the basic critical path planning, and scheduling with arrow and precedence networks, introduction to resource leveling, and least cost scheduling, including time-cost tradeoff analysis and schedule control.

INE729 Project Contracting [3-0, 3 cr.]
This course covers the construction contracting for contractors, owners and engineers. The course also covers industry structure, the types of contracts and delivery systems of construction, planning, estimating, quantity takeoff and pricing, labor and equipment estimate, and the proposal preparation. Students use contract documents to prepare detailed estimates.
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INE742 Quality Control [3-0, 3 cr.]
This course covers the modeling process quality, inferences about process quality, statistical process control, types of control charts, acceptance sampling, and process capability analysis.

INE743 Reliability Evaluation of Engineering Systems [3-0, 3 cr.]
This course covers the concepts and basic background for evaluating the reliability of engineering systems. It covers network modeling and evaluation of simple and complex systems, cut-set method, tie-set method, multi-failure modes. Probability distributions in reliability evaluation and system reliability evaluation using probability distributions are discussed. Also, discrete and continuous Markov chains (reliability evaluation in repairable systems), frequency and duration techniques (concepts, applications to multi-state problems, frequency balance approach) and the Monte Carlo simulation, are covered.

INE744 Inventory Analysis [3-0, 3 cr.]
This course covers the continuous/periodic/deterministic/stochastic inventory models, Materials Requirements Planning (MRP), just-in-time production systems, assembly systems, and flexible manufacturing distribution systems.

INE745 Facilities Planning and Layout [3-0, 3 cr.]
This course covers the process product and schedule design, determining activity relationships and space requirements, mathematical layout models and computerized layout algorithms, location and assignment models, storage spaces and warehouse design, design of non-manufacturing facilities, airport design and the evaluation of alternative design.

INE746 Materials Handling [3-0, 3 cr.]
This course covers the materials handling equipment, selection and design of material handling systems, simulation, and interface with facilities layout.

INE748 Machine Scheduling [3-0, 3 cr.]
This course covers the Basic Single Machine Problem (BSMP); flow shop scheduling with setup cost (TSP); vehicle routing. 
Prerequisite: INE302 Linear Programming.

INE749 Transportation and Supply Chain Systems [3-0, 3 cr.]
This course covers the topics of supply chain characterization, site location, mode selection, distribution planning, vehicle routing, demand management, replenishment management, geographic information systems, and real-time control issues. 
Prerequisite: Consent of the Instructor.

INE761 CAD/CAM [3-0, 3 cr.]
This course covers the use of computer-aided design software packages, including systems for computer-aided drafting, solid modeling, finite element analysis, and computer-aided manufacturing, and design projects including the fabrication of physical prototypes generated with numerically controlled machines.

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INE762 Analysis of Automated Manufacturing Systems [3-0, 3 cr.]
This course covers the development of analytical stochastic models as the basis for understanding the performance, and the design/planning aspects of automated manufacturing systems. The course focuses on flow lines, job shops, and flexible manufacturing systems.

INE763 Advanced Information Technology for Industrial & Manufacturing Engineering [3-0, 3 cr.]
This course covers advanced information technology concepts, tools, and techniques, for designing, and implementing, manufacturing systems.

INE764 Time Series Control & Process Adjustment [3-0, 3 cr.]
This course covers the statistical analysis and design of process adjustment methods for quality improvement purposes. Topics include ARIMA time series models, autocorrelation and SPC, integration of SPC schemes and feedback control, identification and estimation of transfer function models, design and analysis of optimal stochastic controllers, PID and EWMA controllers, self-tuning and multivariable control.

INE771 Financial Engineering [3-0, 3 cr.]
This course is an introduction to financial models: mean-variance analysis, portfolio selection, separation theorems, capital asset pricing, arbitrage pricing, derivative security pricing, bond management, modeling, analysis, and computation of derivative securities. Applications of stochastic calculus and stochastic differential equations are covered, as well as numerical techniques: finite-difference, binomial method, and Monte Carlo simulation. 
Prerequisites: INE704.

INE772 Advanced Financial Engineering [3-0, 3 cr.]
This course is a review of basic mathematics, including renewal theory and stochastic calculus, Martingale approach to Black-Scholes formula, optimal stopping and American options, pricing of continuous and discrete exotic options, term structure models and pricing of bond options, jump diffusion models, and applications, including pricing of real and electricity options, and hedging of real options. 
Prerequisites: INE709 Advanced Stochastic Processes.

INE781 Engineering Economy II [3-0, 3 cr.]
This course covers the principles of investing, including investment strategies, investment in stocks and bonds. Project risk and uncertainty with focus on break-even analysis, decision trees, and sequential investment decisions, are discussed. Capital budgeting, including the choice of minimum attractive rate of return under capital rationing, evaluation of multiple investment alternatives and capital budgeting with limited budgets are covered, as well as the Monte Carlo Simulation.

INE800 Project Course [3-0, 3 cr.]
This course is an applied design course. Design reviews and a final oral presentation with a written report are required. 
Prerequisite: Consent of the Instructor.

INE810 Special Topics in Optimization [3-0, 3 cr.]
This course covers topics of current interest in optimization, selected by instructor. 
Prerequisite: Consent of the Instructor.
INE820 Special Topics in Infrastructure & Construction Management [3-0, 3 cr.]
This course covers topics of current interest in infrastructure, and construction management, selected by instructor.
Prerequisite: Consent of the Instructor.

INE840 Special Topics in Production Systems & Manufacturing [3-0, 3 cr.]
This course covers topics of current interest in production systems and manufacturing, selected by instructor.
Prerequisite: Consent of the Instructor.

INE870 Special Topics in Finance & Economics [3-0, 3 cr.]
This course covers topics of current interest in finance, and economics, selected by the instructor.
Prerequisite: Consent of the Instructor.

INE899 Thesis [6-0, 6 cr]
This course is an independent directed study, design, research in the field of interest of the student or Instructor.

General Engineering Requirements

GNE301 Professional Communication [2-0, 2 cr.]
This course covers the English language proficiency, business letter writing, memo writing, report presentation and writing, etc… and the use of presentation software.
Prerequisite: ENG202 Sophomore Rhetoric.

GNE331 Probability and Statistics [3-0, 3 cr.]
This course covers set theory, probability axioms, random variables (RV), continuous and discrete probability density functions, distributions, operations on RV’s, sampling distributions, confidence intervals (single variable), hypothesis testing (single variable), linear regression (single variable), and non-linear regression.
Prerequisite: MTH206 Calculus IV.

GNE333 Engineering Analysis I [3-0, 3 cr.]
This course covers vector spaces, matrix algebra, solution of linear systems with numerical applications, eigenvalues and eigenvectors and applications, nonlinear equations and systems with numerical solutions and numerical integration.
Prerequisite: MTH206 Calculus IV.

GNE334 Engineering Analysis II* [3-0, 3 cr.]
This course covers vector-integral calculus, Gauss-Stokes theorem, introduction to partial differential equations, Fourier series and Fourier integral, and numerical solution of ordinary and partial differential equations.
Prerequisite: MTH204 Differential Equations, and GNE333 Engineering Analysis I.

* This is an elective course and it may be offered at irregular intervals.
The School of Pharmacy was established in 1993 to promote pharmacy education, research, and pharmaceutical care. The School is responsible for producing excellent pharmacists, capable of providing, and disseminating, new information about drugs and the ever-changing health care system. Graduates will be competent to practice pharmacy in all settings. Additionally, they will have the values to serve society as caring, and ethical, professionals.

The School offers two Professional Degrees: The entry-level Bachelor of Science (B.S.) in Pharmacy, requiring five academic years, and a Doctor of Pharmacy (Pharm.D.), requiring six academic years, including the B.S. in Pharmacy.

Completion of the B.S. in Pharmacy Degree will qualify students to take the National Competency Assessment Examination (Colloquium) to practice in Lebanon.

Graduates of the Pharm.D. Program can sit for the North American Pharmacy Licensure Examination (NAPLEX) in the United States. Graduates who successfully pass the NAPLEX are entitled to become licensed pharmacists, capable of practicing the pharmacy profession in the United States.

The B.S. in Pharmacy consists of two years of Pre-Professional studies, and three years of Professional courses. After receiving their B.S. in Pharmacy, LAU students may choose to apply for admission to the fourth Professional year to earn the Pharm.D. Degree.

The School of Pharmacy comprises two departments: Pharmaceutical Sciences (PS) and Pharmacy Practice (PP).

The PS Department provides foundations in basic, and pharmaceutical, sciences, including: anatomy and physiology, biochemistry, medicinal chemistry, pharmacology, pharmaceutics, and pharmaco economics.

The PP Department provides the didactic, and experiential, component of the Program. The didactic courses include: pharmacotherapeutics, clinical pharmacokinetics, dispensing, and pharmaceutical care. Experiential training encompasses training in various practice settings, allowing students to gain skills in pharmacy management, and experience in the community, hospital, drug information, and clinical settings.

**ACCREDITATION STATUS:**

The School of Pharmacy is a full member of the American Association of Colleges of Pharmacy (AACP). It is the only full member of the AACP outside of the United States.

The Doctor of Pharmacy Program is accredited by the Accreditation Council for Pharmacy Education (ACPE). Currently, the Pharm.D. Program at LAU is the only ACPE accredited Program outside of the United States.

**FACULTY**

**DEAN**
Sadik, Farid, Ph.D.

**ASSISTANT DEAN**
Sholay, Lydia Boutros, Pharm.D.

**CHAIRS**
Saab, Y., Ph.D., Pharmaceutical Sciences
Sheikh Taha, M., Pharm.D., B.C.PS., Pharmacy Practice

Nabhan, S., Pharm.D., B.C.O.P., Director of Experiential Education

**FACULTY**
Abdallah, J., Ph.D.
Abou Jaoude, C., Pharm.D.
Chamoun-Nasser, S., Pharm.D.
Dbeibeh, S., R.Ph.
Daher, C., Ph.D.
Diab-Assaf, M., Ph.D.
Dimassi, H., Ph.D.
Itani, S., Pharm.D.
Jabre, M., Pharm.D.
Kassis, J., Pharm.D.
Khoury, O., R.Ph.
Khabbaz, R., R.Ph.
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PROGRAMS

The curriculum below applies only to students who entered LAU in the Fall 2007 semester. Students who joined the School of Pharmacy prior to the Fall 2007 semester, and beyond, are advised to refer to the 2005 Academic Catalog posted on the LAU Website.

PRE-PROFESSIONAL YEAR I

Fall Semester (17 credits)
ARA201 Appreciation of Arabic Literature 3
——— Arts Elective course 3
CHM201 Chemical Principles 3
——— Physical Education 1
(excluding Basic Health)
BIO201 Biology I 4
——— Liberal Core Elective 3

Spring Semester (16 credits)
ENG203 Communication Arts 3
——— Arts Elective course 3
CHM311 Organic Chemistry I 3
CHM313 Organic Chemistry I Lab 1
Pha202 Medical Anatomy & Physiology 4

PRE-PROFESSIONAL YEAR II

Fall Semester (14 credits)
Pha209 Principles of Pathophysiology and Immunology 4
CHM312 Organic Chemistry II 3
CHM314 Organic Chemistry Lab 1
ENG203 Communication Arts 3
PHA211 Microbiological Basis of Disease 3

Spring Semester (17 credits)
PHa208 Medical Biochemistry 4
Pha205 Statistics for Health Profession Majors 3
Pha210 Systems Pathophysiology 4
Pha0 —Philosophy/Religion/History course 3
——— Social Science course 3

N.B. Students are advised to take a business course.

PROFESSIONAL YEAR I

Fall Semester (17 credits)
PHA308 Pharmaceutical Analysis & Biotechnology 2
PHA309 Pharmaceutical Analysis & Biotechnology, Lab 1
PHA312 Medicinal Chemistry I 3
PHA314 Dosage Forms I 3
PHA315 Dosage Forms I, Lab 1
PHA320 Physical Assessment 2
PHA322 Professional Communication 1
PHA325 Pharmacy Practice & Ethics 2
PHA — Professional Elective 2

Spring Semester (16 credits)
PHA313 Medicinal Chemistry II 3
PHA316 Dosage Forms II 3
PHA317 Dosage Forms II, Lab 1
PHA330 Pharmacology I 4
PHA333 Pharmacy Management & Law 3
PHA340 Pharmacotherapeutics I 2

Summer Semester (7 credits)
PHA398 Pharmacy Practice Management I 3
PHA399 Pharmacy Practice Management II 3
PHA397 Introduction to Professional Pharmacy Practice Experience 1

PROFESSIONAL YEAR II

Fall Semester (18 credits)
PHA441 Pharmacotherapeutics II 3
PHA442 Pharmacotherapeutics III 3
PHA430 Pharmacology II 4
PHA422 Pharmacoconomics & Biopharmaceutics 4
PHA421 Drug Information & Literature Evaluation 2
PHA — Professional Elective 2

Spring Semester (17 credits)
PHA443 Pharmacotherapeutics IV 3
PHA444 Pharmacotherapeutics V 3
PHA445 Pharmacotherapeutics VI 3
PHA449 Dispensing and Pharmaceutical Care 3
PHA452 Toxicology 3
PHA435 Pharmacognosy & Evidence-Based Herbal Medicine 2

Spring Semester (17 credits)
PHA515 Pharmacy Seminar 1
PHA — Professional Elective 2
PHA572 Professional Pharmacy Practice — Patient Care Experience 12
PHA510 U.S. Pharmacy Law & Regulation 2

A total of 6 credits of Professional electives, as one-credit or two-credit courses, should be completed before Graduation.

PROFESSIONAL YEAR III

Fall Semester (18 credits)
PHA550 Introduction to Pharmacogenomics 1
PHA557 Pharmacoconomics 3
PHA560 Clinical Nutrition & Diet Therapy 2
PHA570 Professional Pharmacy Practice — Hospital/DIC Experience 6
PHA571 Professional Pharmacy Practice — Community Experience 6

Spring Semester (17 credits)
PHA515 Pharmacy Seminar 1
PHEL— Professional Elective 2
PHA572 Professional Pharmacy Practice — Patient Care Experience 12
PHA510 U.S. Pharmacy Law & Regulation 2

Students have to choose 3 different topics from the following:
- Pharmacokinetics 3
- Emergency Medicine 3
- Ambulatory Care 3
- Psychiatry 3
- Dermatology 3
- Nephrology 3
- Adult Oncology 3
- Infectious Diseases 3
- Neonatal Intensive care 3
- OB/GYN 3
- Gastroenterology 3
- CCI 3
- Pediatrics 3
- Medical Intensive Care 3
- Endocrinology 3
- Pharmaceutical Industry 3
- Neurology 3
- Family Medicine 3
- Pediatric Oncology 3
- Teaching 3
- Pharmaceutical Company 3
- Pediatrics 3

A total of 6 credits may replace 1 Elective Advanced Pharmacy Practice Experience.

PROFESSIONAL YEAR IV

PHARM D. CANDIDATES ONLY
The Fourth Professional year of the Doctor of Pharmacy Program consists of seven four-weeks advanced practice experiences. The Fourth Professional year consists of four required experiences, as one from each below:
1. Community
2. Internal Medicine
3. Ambulatory Care
4. Critical Care area (cardiology or medical intensive care) and three elective experiences.

A Pharmacy Project Course (3 credits) may replace 1 Elective Advanced Pharmacy Practice Experience.
PROGRAM REQUIREMENTS

I- BACHELOR OF SCIENCE (B.S.) IN PHARMACY

ADMISSION

Students seeking admission into the Pre-Professional Phase of the Program should contact the Office of Admissions, in order to complete the application process.

Students admitted to LAU, after completion of their secondary education, as well as students who hold a B.S. or a B.A. Degree and who did not complete all the requirements in the first two academic years, are eligible to enroll in the Pre-Professional Program. After the completion of the Pre-Professional courses, students must complete an application form for admission into the Professional Phase of the Program. The application forms are obtained from the Office of the Assistant Dean of the School of Pharmacy, and must be submitted with all the required documents (i.e. recommendations and transcripts), before May 31st of every academic year.

Admission into the Professional Phase of the Program takes place only in the Fall Semester, and will be decided upon by the Admissions Committee of the School, with the approval of the Dean. The Committee, automatically, rejects incomplete applications received after the above mentioned deadline. Following the completion of the application process, an individual interview may be conducted with each applicant.

To be admitted into the Pharmacy Professional Phase of the Program, students must complete all the Pre-Professional courses, with a minimum cumulative Grade Point Average (GPA) of 2.5, and pass all the Major courses, with a minimum grade of C, and an overall GPA of, at least, 2.5. Major courses include all the PHA courses, as well as CHM201, CHM311, CHM312, CHM313, and BIO201.

To be eligible to apply to the Professional Program, students are allowed a maximum of three repeats, of the same course, or different courses, and should not have received any academic, or disciplinary, warning.

Admission into the Professional Phase of the Program is competitive. Meeting the minimum requirements does not guarantee acceptance into the Program. A minimum grade of "B" or its equivalent in CHM201, CHM311, CHM312, and BIO201, must be earned by students transferring from institutions other than LAU. Furthermore, only Professional Pharmacy courses from the Accreditation Council for Pharmacy Education (ACPE) accredited programs are transferable.

Applications holding a B.A. or a B.S. Degree are exempted from taking the Liberal Arts Core.

Students admitted into the Professional Program after July 1, 2007, will be subject to the requirement stated in the ACPE Standard 14, Guideline 14.5, namely: “the required Advanced Pharmacy Practice Experience, in all program pathways, must be conducted in the United States, or its territories, or possessions.”

The following statement will be included in the letter of admission sent by both the Registrar, and the School of Pharmacy, to students admitted into the Professional Program:

“In compliance with the ACPE requirement, as stated in Standard 14, Guideline 14.5, your admission into the Professional Program is contingent upon you agreeing to complete the Advanced Pharmacy Practice Experience, in all program pathways, in the United States, or its territories, or possessions.”

II- DOCTOR OF PHARMACY (PHARM.D.)

ACADEMIC PROBATION & DISMISSAL FROM THE PROFESSIONAL PROGRAM

A student failing to score, at least, a “C” in any of the PHA courses, after registering for the course three times, including withdrawals, will be dismissed from the School of Pharmacy.

Students will be placed on Academic Probation (GPA below 2.0) only once. If a student fails to achieve a good academic standing (GPA of 2.0 or above), after a one semester of probation, (excluding Summer), he/she will be suspended from the School of Pharmacy for one year. If a student fails to improve his/her GPA (2.0 or above) during the first semester (excluding summer), after serving his/her suspension, he/she will be dismissed from the School. A student suspended for one year may be considered for readmission, after the School approval, and will be advised to repeat courses in which he/she received an “F”, “C”, “D+”, or a “D”, and may not carry more than 13 credits in a semester.

PROMOTION TO A HIGHER YEAR

To be promoted to a higher year in the Professional Program, a student must complete all courses with a grade of “C”; or better, before being allowed to enroll in any course in the higher year. However, a student must have prior approval from the Dean’s Office to allow him/her to carry one grade of “D” to a higher year. Such deficient grades must be removed, within the two following semesters of the higher year, or the following Summer. Failure to remove these deficiencies, on time, will result in denying promotion to the next higher year.

GRADUATION REQUIREMENTS

To earn a Bachelor of Science in Pharmacy, a student must have a minimum overall GPA of 2.00, in all PHA courses taken at LAU, and have a minimum grade of “C”, in all PHA courses.

ADMISSION

Admission into the Pharm.D. Program takes place, only, in the Fall semester. All applicants must submit a completed application form, no later than July 15 of the year of expected admission.

Admission into the Pharm.D. Program is a competitive process, and students are encouraged to apply to the Program as early as possible, in order to reserve a position for them. Only a specified number of students, with the highest GPA, and good recommendations, will be admitted into the Program. Candidates may be scheduled for an interview as part of the admission process.

Applicants who received the B.S. in Pharmacy from outside of LAU may apply for admission into the Pharm.D. Program. Applications will be reviewed by the Admissions Committee of the School, and remedial courses will be required. Graduates with a B.S. in Pharmacy from LAU will have priority over other applicants.

GRADUATING REQUIREMENTS

To graduate with a Pharm.D. Degree, a student must have a minimum grade of “C”, in all the required courses, and should not have earned more than two grades of “C”.

Students will be allowed to repeat a course only once. A second failure will result in dismissal from the Program. A maximum of two different courses may be repeated. Students may withdraw from a course only once.
COURSE DESCRIPTIONS

PHARMACEUTICAL SCIENCES DEPARTMENT

PHA202 Medical Anatomy and Physiology [4 cr.]
This course covers the anatomy and physiology of the human body, with emphasis on the central nervous system, the autonomic nervous system, the cardiovascular and renal systems, and the immune, endocrine, gastrointestinal, and respiratory systems. A thorough understanding of receptors, their affinity to drugs and hormones, as well as targets for therapeutic interventions, will be emphasized. Congenital malformations, and their physiological impacts, will also be discussed.
Prerequisite: BIO201.
Co-requisite: Pre-Professional Year I status.

PHA204 Computer Application to Pharmacy [2 cr.]
This course covers the use of computers for solving professional, educational, and business problems. The course also covers the utility of computer technology, online information resources, hardware peripherals, CD-ROM databases, programs, and multimedia computing systems, which pharmacists can use in their practice.
Co-requisite: Pre-Professional Year I status.

PHA205 Statistics for Health Profession Majors [3 cr.]
This course covers the descriptive and basic inferential statistics, and issues surrounding the design of biomedical, and biopharmaceutical, investigations.
Co-requisite: Pre-Professional Year II status.

PHA208 Medical Biochemistry [4 cr.]
This course covers the chemistry and metabolism of biomolecules (proteins, lipids, carbohydrates, and DNA) and enzymology, and metabolic pathways to energy utilization. Particular emphasis is placed on the biochemical basis for disease, and targets for therapeutic intervention.
Prerequisites: CHM201, CHM312, and CHM314.
Co-requisite: Pre-Professional Year II status.

PHA209 Principles of Pathophysiology & Immunology [4 cr.]
This course covers the basic principles and mechanisms of pathologies and disorders that affect the human body in general, as well as a few selected systems. It also covers the environmental, nutritional, and genetic origins of pathology, and immunity, in relation to internal, as well as external, disease processes. Diagnostic modalities, interpretation of relevant laboratory data, and an introduction to the basic pharmacology and treatment of major diseases, are also covered.
Prerequisite: PHA202.
Co-requisite: Pre-Professional Year II status.

COURSE DESCRIPTIONS

PHA210 Systems Pathophysiology [4 cr.]
This course is a continuation of PHA209. It covers the pathologies and disorders that affect the human body, in its various systems. It discusses disease processes, etiologies, and symptoms, as well as diagnostic modalities, the interpretation of relevant laboratory data, and an introduction to the basic pharmacology and the treatment of major diseases of the various bodily systems. The course will consist of lectures, discussions, as well as case presentations.
Prerequisite: PHA209.
Co-requisite: Pre-Professional Year II status.

PHA211 Microbiological Basis of Disease [3 cr.]
This course covers the characteristics of microorganisms, in general, and the specific characteristics of pathogenic bacteria, viruses, and fungi. Topics include the different aspects of medical microbiology, identification and the control of pathogens, disease transmission, host resistance, immunity, control of infection, and the development of microbiological techniques.
Prerequisite: BIO201.
Co-requisite: Pre-Professional Year II status.

PHA308 Pharmaceutical Analysis and Biotechnology [2 cr.]
This course is an introduction to the principles and techniques used in pharmaceutical analysis, hence; extraction, spectroscopy, chromatography, and dissolution procedures. Particular emphasis is placed on the recombinant DNA technology.
Prerequisite: CHM201, CHM312, and CHM314.
Co-requisite: Professional Year I status.

PHA309 Pharmaceutical Analysis and Biotechnology Lab [1 cr.]
This course is a laboratory taken, concurrently, with PHA308. Techniques used to assess the quality of drug products are covered, as well as, PCR, and electrophoresis techniques.
Prerequisite: CHM201, CHM312, and CHM314.
Co-requisite: PHA308; Professional Year I status.

PHA312 Medicinal Chemistry I [3 cr.]
This course covers the physicochemical properties of various drug categories, their relation to biological activity, metabolic pathways, and structure-activity, and their adverse effects.
Prerequisites: CHM312, and CHM314
Co-requisite: Professional Year I status.

PHA313 Medicinal Chemistry II [3 cr.]
This course is a continuation of Medicinal Chemistry I.
Prerequisite: PHA312.
Co-requisite: Professional Year I status.
COURSE DESCRIPTIONS

PHA314 Dosage Forms I [3 cr.]
This course covers the design, formulation, manufacturing, and evaluation of pharmaceutical dosage forms, based on physical chemical principles. Drug regulatory affairs, current good manufacturing practices, in compliance with FDA guidelines and standards, pre-formulation studies, formulations of solids, liquids, and aerosols, are discussed.
Co-requisite: PHA315, Professional Year I status.

PHA315 Dosage Forms I Laboratory [1 cr.]
This is a compounding laboratory taken, concurrently, with PHA314. Techniques and principles used to prepare, and dispense, individual extemporaneous prescriptions, including calculations and dating of compounded dosage forms, are discussed.
Co-requisite: PHA314, Professional Year I status.

PHA316 Dosage Forms II [3 cr.]
This course is a continuation of PHA314. It covers the design, formulation, manufacturing, and evaluation of semi-solid, complex, and novel, pharmaceutical dosage forms.
Prerequisite: PHA314
Co-requisite: PHA317, Professional Year I status.

PHA317 Dosage Forms II Laboratory [1 cr.]
This is a compounding laboratory taken, concurrently, with PHA316.
Prerequisite: PHA315
Co-requisite: PHA316, Professional Year I status.

PHA320 Physical Assessment [2 cr.]
This course is an introduction to the various techniques and tools necessary to conduct physical examinations, and to monitor modifications caused by common disease states, and drug therapy. Practical sessions are included.
Prerequisite: PHA210
Co-requisite: Professional Year I status.

PHA322 Professional Communication [1 cr.]
This course is an analysis and application of the factors promoting, or hindering, successful communications between the pharmacist and the patients, as well as with health professionals.
Prerequisite: ENG202, and ENG203
Co-requisite: Professional Year I status.

PHA325 Pharmacy Practice and Ethics [2 cr.]
This course is an introduction to the practice of Pharmacy in institutional and community settings. It entails the study of the development of the profession of pharmacy, and the ethical principles upon which the profession rests.
Co-requisite: Professional Year I status.

PHA330 Pharmacology I [4 cr.]
The course is designed to introduce students to the principles of drug use. The course emphasizes on drug-receptor relationships, pharmacodynamics, pharamcokinetics, drug-drug interactions, and the adverse effects of various categories of drugs.
Prerequisite: PHA210.
Co-requisite: PHA313, Professional Year I status.

PHA333 Pharmacy Management & Law [3 cr.]
This course is an introduction to pharmacy management, as applied to various pharmacy practice settings. Topics will be discussed within the framework of the Lebanese law.
Co-requisite: Professional Year I status.

PHA421 Drug Information and Literature Evaluation [2 cr.]
This course covers the use of reference sources to retrieve, to evaluate, and to disseminate information in pharmacy practice. Fundamentals of research design, methodology, and analysis in practicing evidence-based pharmacy, are discussed.
Prerequisite: PHA330, and PHA205.
Co-requisite: Professional Year II status.

PHA422 Pharmacokinetics and Biopharmaceutics [4 cr.]
This course entails the study and application of the fundamental concepts of absorption, distribution, metabolism, and the elimination of drugs. The influences of formulation, disease, and diet on pharmacokinetics, as well as the principles of bioavailability, and bioequivalence, are discussed.
Prerequisite: PHA316.
Co-requisite: Professional Year II status.

PHA430 Pharmacology II [4 cr.]
This course is a continuation of PHA330.
Prerequisite: PHA210, PHA313, PHA330, and PHA211.
Co-requisite: Professional Year II status.

PHA435 Pharmacognosy and Evidence Based Herbal Medicine [2 cr.]
This course is an introduction to the preparation and extraction of active ingredients, and the identification and classification of medicinal plants. An explanation of the pharmacology and therapeutic use of commonly prescribed and dispensed herbal medicines, based on current scientific research, is covered.
Prerequisite: PHA313.
Co-requisite: Professional Year II status.

PHA452 Toxicology [3 cr.]
This course covers the fundamental and mechanistic aspects of toxicology, with emphasis on the mechanisms of toxicants, pathophysiology, clinical manifestations, and on the management of toxic exposures, and antidotal therapy.
Prerequisite: PHA330, PHA430, and PHA422.
Co-requisite: Professional Year II status.
COURSE DESCRIPTIONS

**PHAS510 U.S. Pharmacy Law and Regulation [2 cr.]**
This course covers the federal laws that affect the regulation of drugs, and the practice of pharmacy. The course helps the students realize and understand the general principles of the federal law related to drug control, and to pharmacy practice.
Co-requisite: Professional Year III status.

**PHAS550 Introduction to Pharmacogenomics [1 cr.]**
This course covers the relationship of genetic individual variability to drug response.
Prerequisite: PHA430.
Co-requisite: Professional Year III status.

**PHAS557 Pharmacoconomics [3 cr.]**
This course is an introduction to the role of pharmacoconomics in the health-care system, with emphasis on research outcomes. This course covers the application of pharmaco-economic analysis in clinical practice.
Prerequisite: PHA333, and PHA421.
Co-requisite: Professional Year III status.

**PHAS560 Clinical Nutrition & Diet Therapy [2 cr.]**
This course covers the principles of nutrition, with emphasis on the nutritional aspects of carbohydrates, lipids, proteins, vitamins, electrolytes, and trace elements. Total parental nutrition, enteral nutrition, nutrition for growth and development, and nutrition care of selected disease states will be covered.
Prerequisites: PHA340, PHA441, PHA442, PHA443, PHA444, and PHA445.
Co-requisite: Professional Year III status.

**PROFESSIONAL PHARMACY ELECTIVES**
Note: Electives may not be offered on a regular basis.

**PHA400 Medical Terminology [1 cr.]**
This course covers the study of how to build medical terms from Greek and Latin prefixes, suffixes, word roots, and combining forms.

**PHA401 History of Pharmacy [1 cr.]**
This course covers the evolution, and the development of the history of Pharmacy, from ancient civilization to modern times.

**PHA402 Cosmetics [2 cr.]**
This course entails a study of the manufacture and the use of cosmetic preparation, intended to be applied to the human body, for cleansing, beautifying, or altering appearance.

**PHA403 Pharmacogenomics [2 cr.]**
This course entails a study of how to tailor drug therapy for an individual, based on his/her genetic make-up.

**PHA404 Vaccines and Other Biologicals [2 cr.]**
This course entails a study of the preparation, storage, and use, of vaccines, and biologicals such as: toxins, toxoids, serums, and antigens.

**PHA405 Pharmaceutical Parenterals [2 cr.]**
This course covers pharmaceutical parenterals, and the pre formulation and formulation of parenteral products. Methods used in the manufacturing, preparation, handling, quality control, and dispensing, of sterile dosage forms, including aseptic preparation of parenteral and enteral nutrition products, chemotherapeutic agents, biological, and specialty solutions, are covered. This course includes lectures and laboratories.

**PHARMACY PRACTICE DEPARTMENT**

**PHA398 Pharmacy Practice Management I [3 cr.]**
This course covers the aspects of practical experiences in selected pharmacy management settings, under the supervision of pharmacists, and clinical faculty coordinators. It also covers the management approaches and services provided in hospital pharmacies, in accordance with the Lebanese law. This course includes lectures and laboratories.
Prerequisites: PHA210, PHA313, PHA316, PHA322, PHA333, and PHA320, Professional Year I status.

**PHA399 Pharmacy Practice Management II [3 cr.]**
This course is a continuation of PHA398. This course covers the aspects of practical experiences in selected hospital pharmacy management environments, under the supervision of pharmacists, and clinical faculty coordinators. It also covers the management approaches and services provided in hospital pharmacies, in accordance with the Lebanese law. This course includes lectures and laboratories.
Prerequisite: PHA210, PHA313, PHA316, PHA322, PHA333, and PHA320, Professional Year I status.

**PHA397 Introduction to Professional Pharmacy Practice Experience [1 cr.]**
This course is an introduction to the practice of pharmaceutical care, through a structured early learning experience, in a clinical setting, and under the supervision of a clinical faculty.
Prerequisites: PHA210, PHA313, PHA316, PHA320, PHA322, and PHA333, Professional Year I status.

**PHA340 Pharmacotherapeutics I [2 cr.]**
This is the first in a series of six courses addressing the pharmacotherapeutic principles, and functional consequences, of the disease state. Discussion will focus on the therapeutic problem solving, and the evaluation of drugs commonly used in clinical practice. Individualization of pharmacotherapy, selection of appropriate drug regimen, with its efficacy and toxicity monitoring parameters, and the assessment of various drug interactions, and their adverse reactions, are covered. Disease prevention, patient counseling, and pharmacoeconomics issues, will be an integral part of each disease state management. Pharmacotherapeutics of psychiatric diseases will be discussed.
Prerequisites: PHA210, PHA312, and PHA320.
Co-requisite: PHA330, Professional Year I status.
COURSE DESCRIPTIONS

PHA441 Pharmacotherapeutics II [3 cr.]
This course focuses on endocrinologic, and oto/ophthalmologic, disease, and women’s health.
Prerequisite: PHA210, PHA313, PHA316, PHA320, PHA397, PHA398, and PHA399.
Co-requisite: PHA430, Professional Year II status.

PHA442 Pharmacotherapeutics III [3 cr.]
This course focuses on the pulmonary, gastrointestinal, arthritic, and nephrologic diseases.
Prerequisites: PHA210, PHA313, PHA316, PHA320, PHA397, PHA398, and PHA399.
Co-requisite: PHA443, Professional Year II status.

PHA443 Pharmacotherapeutics IV [3 cr.]
This course focuses on the cardiovascular and dermatologic diseases.
Prerequisites: PHA210, PHA313, PHA316, PHA320, PHA397, PHA398, PHA399, and PHA430.
Co-requisite: Professional Year II status.

PHA444 Pharmacotherapeutics V [3 cr.]
This course focuses on infectious diseases.
Prerequisite: PHA210, PHA211, PHA313, PHA316, PHA320, PHA397, PHA398, PHA399, and PHA430.
Co-requisite: Professional Year II status.

PHA445 Pharmacotherapeutics VI [3 cr.]
This course focuses on the hematologic/oncologic, neurologic, genitourinary, and reproductive system diseases.
Prerequisites: PHA210, PHA313, PHA316, PHA320, PHA397, PHA398, PHA399, and PHA430.
Co-requisite: Professional Year II status.

PHA449 Dispensing and Pharmaceutical Care [3 cr.]
This course covers the techniques and skills required to safely, and accurately, dispense prescription and non-prescription drug products to patients. Emphasis will be on computerized patient record keeping, interpreting and evaluating prescriptions, as well as tips for patient counseling.
Prerequisites: PHA322, PHA340, PHA430, PHA441, and PHA442.
Co-requisites: PHA443, PHA444, PHA445, PHA452 and Professional Year II status.

PHA515 Pharmacy Seminar [1 cr.]
This course entails discussions of current literature, as well as issues concerning the pharmacy profession.
Prerequisite: PHA340, PHA421, PHA422, PHA441, PHA442, PHA443, PHA444, and PHA445.
Co-requisite: Professional Year III status.

PHAS70 Professional Pharmacy Practice – Hospital/DIC Experience [6 cr.]
This course covers pharmacy practice in a hospital setting, and at a drug information center. The course covers the principles of hospital pharmacy management rules and regulations, drug distribution systems, patient-oriented pharmacy services, as well as the principles of evidenced based medicine, and the systemic approach in answering drug information questions, and analyzing the literature.
Prerequisite: Passing all the PHA courses from the Pre-Professional years.
Co-requisite: Professional Year III status.

PHAS71 Professional Pharmacy Practice – Community Experience [6 cr.]
This course covers the pharmacy practice in a community setting. The course deals with the principles of community pharmacy management rules and regulations, drug distribution systems, and patient-oriented pharmacy services which include dispensing medications, communicating with patients and health professionals, providing proper information, and monitoring the patient profiles for drug interactions, medication noncompliance, and inappropriate drug therapy.
Prerequisite: Passing all the PHA courses from the Pre-Professional years.
Co-requisite: Professional Year III status.

PHAS72 Professional Pharmacy Practice – In-patient Care Experience [12 cr.]
This course covers the use of therapeutic problem-solving skills, and the knowledge of the appropriate use of medications in patient care environments which include: patient monitoring, therapeutic consultation, and in-service presentation and communication with health care professionals and patients.
Prerequisite: Passing all the PHA courses from the Pre-Professional years.
Co-requisite: Professional Year III status.

PHA622 Clinical Pharmacokinetics [2 cr.]
This course covers the application of pharmacokinetics principles for the rational design, and monitoring, of individualized dosage regimen for commonly used, and low-therapeutic-index drugs.
Prerequisite: Bachelor of Science in Pharmacy, Professional Year IV status.
REQUIRED/ELECTIVE: ADVANCED PHARMACY PRACTICE EXPERIENCE DESCRIPTIONS
Numerous and various experiences are available for the Doctor of Pharmacy advanced practice rotations, including: institutional health care systems, community pharmacies, pharmaceutical industry, and clinical and pharmaceutical sciences’ research opportunities. The experience is supervised by skilled preceptors. Yearly, the Chair of the Pharmacy Practice will prepare a list of the currently available experiences.

Experience Selection
Students will be matched with the rotation sites based on the students’ choice and availability. In July, students are asked to rank, in order of preference, the elective rotations they would like to do.

Experience Scheduling
The Chair of the Pharmacy Practice and the Site Coordinators schedule all experiences. Students are asked not to contact individual preceptors to schedule or reschedule the Experience elective. Students desiring to modify their schedule need to approach the Chair of the Pharmacy Practice, with a valid excuse, by the third and the fourth week of September, before the start of the first experience.

REQUIRED ADVANCED PHARMACY PRACTICE EXPERIENCES
PHA660 – PHA663
The required experiences are designed to allow the student to develop a strong understanding of specific areas of internal medicine, pediatrics, intensive care, and community principles. The goals that students should achieve during this module are to further understand the pathophysiology and treatment of various diseases commonly encountered, and to develop strong, and advanced, skills in the design and monitoring of rational pharmacotherapy regimens, and how they can utilize available data to maximize pharmaceutical care. The students will also work with both the medical and pharmacy services, and will provide pharmaceutical care to the patients. The students will gain the relevant knowledge, learning valuable information for their future practice. Students will also gain strong skills in professional, and educational, communications, all under the mentoring of the clinical pharmacy experienced preceptors.

Prerequisite: Bachelor of Science in Pharmacy, Professional Year IV status.

PHA650 Elective Advanced Pharmacy Practice
The elective experience is designed to allow the student to develop a stronger understanding of a specialty area.

For direct patient care experiences, the goals that students should achieve during this elective experience are generally to further understand the pathophysiology and treatment of various diseases in that specialty, and to develop strong, and advanced, skills in the design and monitoring of rational pharmacotherapy regimens, and how they can utilize the available data to maximize pharmaceutical care. Students will work closely with the Chief of Department, or the Chief Resident, and under a close mentoring from a Clinical Pharmacy Faculty. Furthermore, the students will also provide pharmaceutical care to the patients, and will gain the relevant knowledge, learning valuable information for their future practice.

PHARMACY PROJECT
This course will be offered as an elective to all Pharm D. students who wish to engage in research. At the beginning of the academic year, a list of potential research projects will be generated by the School of Pharmacy from which students can choose. The scope of the Project can be either in pharmaceutical sciences, or clinical pharmacy.

The interested students will commit to the Project at the beginning of the Fall semester, and will dedicate a month during the Spring semester for the completion of the work. The Project must be completed, and submitted, at the end of the Spring semester.
FACULTY

FOUNDING DEAN
Badr, Kamal F., M.D.

ASSISTANT DEANS
Hijazi, Zeinat, M.D., Education
Zalloua, Pierre, Ph.D., Research
Zreik, Tony, M.D., Clinical Affairs
The School of Medicine (SOM) is in the pre-operating phase, with a targeted date of September 1, 2009, for the beginning of the first academic year. The School will accept applications from pre-Medical students who fulfill its admission requirements (available at http://www.lau.edu.lb). Class size will start at 24, and increase to a maximum of 64 by the fifth year of operation.

MISSION
The Mission of the School of Medicine at LAU is to create a medical academy that will define, and shape, the character of a “new physician”.

VISION
While providing talented young men and women with the opportunity to pursue an American-style medical education, the SOM will also emphasize basic and clinical/translational research, particularly targeting regional health needs. The SOM aims for a leading role in the Middle East region by establishing triangular collaborations among regional medical centers, their partners in American medicine, and LAU.

Learning Objectives
LAU Medical Graduates will be expected to:
1. Provide patient-centered care.
2. Employ evidence-based practice.
3. Utilize informatics.
4. Apply quality improvement.
5. Work in interdisciplinary teams.

These competencies will be achieved through a four-year medical curriculum with the following overall objectives, delivered as four themes.

Basic and Clinical Science Theme:
1. Describe and identify normal anatomical structures in the human body and relate anatomical knowledge to the practice of medicine.
2. Describe and identify the microscopic structure of the basic tissues and major organs of the body and relate the microscopic structure of each organ to its function.
3. Understand and describe the cellular and molecular mechanisms which support homeostasis, and how body systems interact with each other for maintenance of whole body functions.
4. Demonstrate knowledge of etiology, morphology, pathogenesis, pathophysiology, biochemical processes and molecular basis of common diseases, and how they correlate with clinical signs and symptoms, and the principles underlying their diagnoses and treatment.
5. Know the roles of microbes in causing human diseases, and that of the immune system in health and disease.
6. Handle drugs safely and effectively considering their mechanisms of action, pharmacokinetics and pharmacodynamics in the management of patient’s problems, and critically evaluate alternative means of healing.
7. Recognize the role of genetic factors in health and disease.

Clinical Competence Theme
1. Obtain relevant medical history from patients and perform appropriate physical examination showing courtesy, respect, and empathy in communication with both patients and their relatives.
2. Use clinical judgment, scientific principles and an evidence-based approach to set a management plan to patient’s problem(s) with due consideration to benefits, risks, costs and preferences.
3. Prioritize patients’ problems and deal with them accordingly.
4. Recognize life-threatening situations, and deliver basic emergency care for such patients within or outside healthcare facilities.
5. Be aware of how illness may affect the patient–doctor relationship.

Professional and Behavioral Theme
1. Discuss the basics of normal human development, and the range of behavior at each stage of the life cycle.
2. Communicate with patients and their families courteously and provide appropriate counseling, while demonstrating respect for their beliefs, views, and privacy.
3. Communicate professionally, clearly, and concisely with all categories of healthcare workers in all areas, and all media.
4. Use ethical principles in all healthcare-related decision-making, particularly where this may involve disadvantaged members of society.
5. Recognize one’s limits of knowledge and abilities, and seek help in a timely manner.
6. Demonstrate competence in the use of information technology in clinical practice and medical research.
7. Engage in continuous self-evaluation and continuous medical education, and take responsibility for one’s professional development.
8. Critically evaluate reports in the medical literature.
9. Interact positively with the pharmaceutical industry by observing the code of medical ethics, transparency, and professionalism.

Social Medicine and Public Health Theme
1. Recognize the uses of epidemiologic and statistical principles, and their applications to the clinical practice of medicine.
2. Become familiar with the theory and practice of social medicine.
3. Describe and discuss the role of biomedical research in the study of disease etiology, prevention and treatment in human subjects.
4. Identify the morbidity and mortality risk factors in Lebanon and the Middle East region, explain the role and relevance of preventive medicine, and demonstrate knowledge of the healthcare system necessary to give correct advice to all categories of patients.
5. Explain the meaning and the impact of illness on the individual, his family and the wider social network.
6. Recall, recognize, and discuss how behavioral, psychosocial, cultural, economic, political, environmental, and occupational factors influence health and disease.
7. Be able to think critically about health inequality and suggest how to prevent or reduce health disparities.
8. Reflect on the culture of medicine into which medical students are being socialized and transformed.
FACULTY

Abdallah, Wissam
Ph.D., Management Sciences, University of Manchester Institute of Science and Technology, 2004.

Abdel Baki, Randa

Abdo, Antoine
Ph.D., Literature, Université Saint Joseph, 1986.

Abi Fares, Ghada

Abi Ghannem, Samer
M.A., Actuarial Science, University of Texas at Austin, 2003.
M.M.B., Money & Banking, American University of Beirut, 1999.

Abosedra, Salaheddin

Abou Jaoude, Cynthia
Ph.D., Economics, University of Colorado, 1984.

Abou Arbid, Silia
Bachelor of Architecture, University of Montreal, 1993.

Abou Hamia, Mohamad

Abou Jaoude, Grace
Ph.D., Civil Engineering, Purdue University, 2006.

Abou Rjeily, Chadi

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Abu Teen, Samir
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Aercek, Kristiaan
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Aghacy, Samira

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Ammar, Diala
Ph.D., Motor Development, Texas A & M University, 2006.

Andraos, Albert

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Ph.D., Human Resources Development, Barry University, 1997.

Arnaout, Jean-Paul
Ph.D., Management & Systems Engineering, Old Dominion University, 2006.

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Badr, Elie
Ph.D., Mechanical Engineering, University of Tulsa, 1994.

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M.D., Internal Medicine/Nephrology, American University of Beirut, 1980.

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Baroudi, Sami
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Bazzi, Tarif
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Behmardi, Vahid
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Ben Sita, Bernard
D.S., Economics & Business Administration, Swedish School of Economics & Business Administration, 2005.

Bohsali, Rached

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Boustani, Soula
Ph.D., Pharmaceutical Science, Université de Montreal, 1997.

Canaan Messara, Leila
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Chalhoub, Michel

Chamoun, Rachid
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Chatila, Jean
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Dabbous-Sensenig, Dima
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Daccache, Maroun

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Dibeh, Ghassan
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Dimassi, Hani

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El Hussari, Ibrahim
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Ph.D., Literature, Kingston University, 1982.

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Fawaz, Wissam

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Ph.D., Marketing, Louisiana Tech University, 1984.

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Ghajar, Raymond

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Harfoushe, Abdel Majid
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Harik, Rami

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Hashwa, Fuad
Ph.D., Microbiology, University of Goettingen, 1972.

Hjazi, Zeinat
M.D., Medicine, University of Cairo, 1973.

Houri, Ahmed

Huson, Royce

Issa, Camille
Ph.D., Structural Engineering, Virginia Polytechnic Institute & State University, 1985.

Jabour, Mona
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Jabrara, Joseph
Ph.D., Political Science, Catholic University of America, 1970.

Jeha, Mimi
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Jureidini, Farid

Kabbani, Ahmad
Ph.D., Chemistry, University of California-Davis, 1979.

Kahil, Abdallah
FACULTY

Khuri, Richard  
Ph.D., Philosophy, University of California, 1986.

Kiprianos, Joseph  

Knio, Mona  

Korfali, Samira  
Ph.D., Chemistry, University of Bradford, 1999.

Kouatli, Issam  
Ph.D., Mechanical Engineering, University of Birmingham, 1990.

Ladki, Said  

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Lahoud, Bassam  

Maalouf, Ramez  
Ph.D., History of Science, University of Oklahoma, 1985.

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Majdalani, Michel  
M.B.A., Finance, Columbia University, 1985  
M.S., Operations Research, Columbia University, 1984  
M.S., Electrical Engineering, Columbia University, 1983.

Malik, Habib  

Mansour, Cedar  
J.D., Law, West Virginia University, 1991.

Mansour, Nashat  
Ph.D., Computer Science, Syracuse University, 1992.

Marroum, Marianne  
Ph.D., Comparative Literature, Purdue University, 1993.

Mawlawi, Ziad  

McGill, John  
Ph.D., Management Science, University of Massachusetts, 1992.

Mikdashi, Tarek  
Ph.D., Education (Mathematics), University of Michigan, 1979.

Mohsen, Raed  

Moubawad, Ray  

Moubarak, Walid  
Ph.D., Political Science, Indiana University, 1979.

Moujaes, Joe  
B.E., Civil Engineering, Lebanese American University, 2001.

Moujaes, Samar  
Doctorat, Arabic Studies, Université de Paris-Sorbonne, 1997.

Mroueh, Mohammad  
Ph.D., Pharmacology, University of Houston, 1992.

Musallam, Munjid  
M.S., Computer Science, University of Texas at Austin, 1989.

Na’was, Tarek  
Ph.D., Medical Sciences, American University of Beirut, 1983.

FACULTY

Nabhani, Mona  

Nabhani, Shereen  

Naja, Hassan  
M.B.A., Aviation, Embry-Riddle Aeronautical University, 1981.

Nakad, Zahi  
Ph.D., Computer Engineering, Virginia Polytechnic Institute & State University, 2003.

Naous, Ghada  
M.S., Chemistry, American University of Beirut, 1996.

Nasr, George Elias  

Nasrallah, Fouad  
J.D., Law, University of Dayton, 1982.

Nasrallah, Therese  
M.S., English Language & Literature, Mankato State University, 1987.

Nassar, Lina  
Doctorat, Theater Studies, Université de la Sorbonne Nouvelle, 1995.

Nasser, Soumana  

Nimah, Najib  
M.D., Medicine, American University of Beirut, 2001.

Nour, Chadi  

Obeid, Samir  

Ouaiss, Iyad  
Ph.D., Computer Engineering, University of Cincinnati, 2002.

Oueini, Ahmad  

Papazian, Vatche  
M.S., Computer Science, University of Wisconsin, 1971.

Pempedjian, Giselle  

Plourde, Melissa  

Prescott-Decie, Brian  

Raad, Elias  
Ph.D., Finance, University of Alabama, 1989.

Ra’ad, Basem L.  
Ph.D., English and American Literature, University of Toronto, 1978.

Ramadan, Wijdan  

Rizk-Jamati, Sandra  
Ph.D., Biology, University of Glasgow, 2000.

Romanos, Antoine  

Rowayheb, Marwan  
## FACULTY

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Field</th>
<th>Institution</th>
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<tbody>
<tr>
<td>Saab, Nada A.</td>
<td>Ph.D.</td>
<td>Religious Studies-Islam</td>
<td>Yale University, 2003</td>
</tr>
<tr>
<td>Saab, Samer</td>
<td>Ph.D.</td>
<td>Electrical Engineering</td>
<td>University of Pittsburgh, 1992</td>
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<tr>
<td>Saab, Yolande</td>
<td>Ph.D.</td>
<td>Pharmacy</td>
<td>Brighton University, 2004</td>
</tr>
<tr>
<td>Saad, Aline</td>
<td>Pharm.D.</td>
<td>Pharmacy</td>
<td>Wayne State University, 2004</td>
</tr>
<tr>
<td>Sadik, Farid</td>
<td>Ph.D.</td>
<td>Pharmacy</td>
<td>University of Mississippi, 1968</td>
</tr>
<tr>
<td>Salamey, Imad</td>
<td>Ph.D.</td>
<td>Political Science</td>
<td>Wayne State University, 2003</td>
</tr>
<tr>
<td>Salloukh, Bassel</td>
<td>Ph.D.</td>
<td>Political Science</td>
<td>McGill University, 2000</td>
</tr>
<tr>
<td>Salman, Nabil</td>
<td>B.A.</td>
<td>Business Administration</td>
<td>Central State University, 1980</td>
</tr>
<tr>
<td>Samia, Elie</td>
<td>M.A.</td>
<td>Political Science</td>
<td>American University in Cairo, 1989</td>
</tr>
<tr>
<td>Sarouphim, Ketty</td>
<td>Ph.D.</td>
<td>Education Psychology</td>
<td>University of Arizona, 1997</td>
</tr>
<tr>
<td>Sayegh, Salim</td>
<td>Ph.D.</td>
<td>Public International Law</td>
<td>Université de Paris XI, 1992</td>
</tr>
<tr>
<td>Seigneurie, Kenneth</td>
<td>Ph.D.</td>
<td>Comparative Literature</td>
<td>University of Michigan, 1995</td>
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<tr>
<td>Semaan, Mars</td>
<td>Ph.D.</td>
<td>Physics</td>
<td>Texas Christian University, 1982</td>
</tr>
<tr>
<td>Sfeir, Abdallah</td>
<td>Ph.D.</td>
<td>Mechanical Engineering</td>
<td>University of California, 1969</td>
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<tr>
<td>Shahin, Wassim</td>
<td>Ph.D.</td>
<td>Economics</td>
<td>Indiana University, 1986</td>
</tr>
<tr>
<td>Shahine, Mona</td>
<td>M.A.</td>
<td>Education</td>
<td>American University of Beirut, 1996</td>
</tr>
<tr>
<td>Shami, Samira</td>
<td>M.A.</td>
<td>English as a Foreign Language</td>
<td>Southern Illinois University at Carbondale, 1975</td>
</tr>
<tr>
<td>Sharafeddine, Sanaa</td>
<td>Ph.D.</td>
<td>Electrical Engineering</td>
<td>Munich University of Technology, 2005</td>
</tr>
<tr>
<td>Sheikh Taha, Marwan</td>
<td>Pharm.D.</td>
<td>Pharmacy</td>
<td>Lebanese American University, 1999</td>
</tr>
<tr>
<td>Skulte-Ouais, Jennifer</td>
<td>Ph.D.</td>
<td>Government &amp; Politics</td>
<td>University of Maryland, 2005</td>
</tr>
<tr>
<td>Sholy, Lydia</td>
<td>Pharm.D.</td>
<td>Pharmacy</td>
<td>Creighton University, 1991</td>
</tr>
<tr>
<td>Smith, Jonathan D.</td>
<td>M.A.</td>
<td>International Peace Studies</td>
<td>University of Notre Dame, 2006</td>
</tr>
<tr>
<td>Sreih, Josiane</td>
<td>Ph.D.</td>
<td>Management</td>
<td>Université de Paris, 1996</td>
</tr>
<tr>
<td>Taan, Yasmine</td>
<td>M.S.</td>
<td>Communications Design</td>
<td>Pratt Institute, 1995</td>
</tr>
<tr>
<td>Tabar, Paul</td>
<td>Ph.D.</td>
<td>Sociology/Anthropology</td>
<td>Macquarie University, 1990</td>
</tr>
<tr>
<td>Tabbara, Mazen</td>
<td>Ph.D.</td>
<td>Structural Engineering</td>
<td>Northwestern University, 1990</td>
</tr>
<tr>
<td>Takche, Jean</td>
<td>Ph.D.</td>
<td>Mathematics</td>
<td>Pennsylvania State University, 1984</td>
</tr>
<tr>
<td>Tokajian, Sima</td>
<td>Ph.D.</td>
<td>Medical Science</td>
<td>University of Newcastle Upon Tyne, 2003</td>
</tr>
<tr>
<td>Touma, Rony</td>
<td>Ph.D.</td>
<td>Applied Mathematics</td>
<td>University of Montreal, 2005</td>
</tr>
<tr>
<td>Turk-Ariss, Rima</td>
<td>Ph.D.</td>
<td>Computer Engineering</td>
<td>University of Texas at Austin, 1992</td>
</tr>
<tr>
<td>Vassilenko, Larissa</td>
<td>Ed.D.</td>
<td>Education</td>
<td>University of Leicester, 2004</td>
</tr>
<tr>
<td>Wex, Brigitte</td>
<td>Ph.D.</td>
<td>Photochemical Sciences</td>
<td>Bowling Green State University, 2005</td>
</tr>
<tr>
<td>Yunis, Manal</td>
<td>M.S.</td>
<td>Business Management</td>
<td>Lebanese American University, 1990</td>
</tr>
<tr>
<td>Zaloua, Pierre</td>
<td>Ph.D.</td>
<td>Molecular &amp; Cellular Biology</td>
<td>University of California, 1996</td>
</tr>
<tr>
<td>Zebian, Samar</td>
<td>Ph.D.</td>
<td>Psychology</td>
<td>University of Western Ontario, 2001</td>
</tr>
<tr>
<td>Zeenny, Rony</td>
<td>Pharm.D.</td>
<td>Pharmacy</td>
<td>Lebanese American University, 2005</td>
</tr>
<tr>
<td>Zeitouni, Abeer</td>
<td>Pharm.D.</td>
<td>Pharmacy</td>
<td>Lebanese American University, 2001</td>
</tr>
<tr>
<td>Zeitouni, Latif</td>
<td>Ph.D.</td>
<td>Semiotics</td>
<td>Université D’aix Marseille I, 1985</td>
</tr>
<tr>
<td>Zouein, Pierette</td>
<td>Ph.D.</td>
<td>Civil Engineering</td>
<td>University of Michigan, 1996</td>
</tr>
<tr>
<td>Zreik, Tony</td>
<td>M.D.</td>
<td>Gynecology &amp; Obstetrics</td>
<td>American University of Beirut, 1986</td>
</tr>
</tbody>
</table>
PRESIDENTS AND ADMINISTRATIVE OFFICERS

FORMER PRESIDENTS

LAU PRESIDENTS

Frances Irwin 1924 – 1935
Winifred Shannon 1935 – 1937 (Acting)
William A. Stoltzfus 1937 – 1958
James H. Nicol 1941 – 1943 (Acting)
Rhoda Orme 1954 – 1955 (Acting)
Grace Loucks Elliot 1958 – 1959 (Acting)
Frances M. Gray 1959 – 1965
Salwa Nassar 1965 – 1967
Marie Sabri 1967 – 1969 (Acting)
Albert Y. Badre 1973 – 1982
Riyad F. Nassar 1982 – 2004

PRESIDENT AND ADMINISTRATIVE OFFICERS

PRESIDENT

Joseph G. Jabbra, Ph.D.
2004 - Present Day

UNIVERSITY OFFICERS

Abdallah Sfeir, Ph.D.,
Vice President for Academic Affairs
Elise Salem, Ph.D.,
Vice President for Student Development and Enrollment Management
Emile Lamah, B.S., C.P.A.,
Assistant Vice President for Finance
Richard Rumsey, M.A.,
Vice President for University Advancement
George Tomey, M.S.,
Vice President for Human Resources and University Services
Samira Aghacy, Ph.D.,
Dean of the School of Arts and Sciences, Beirut
Fuad Hashwa, Ph.D.,
Dean of the School of Arts and Sciences, Byblos
Tarek Mikdashi, Ph.D.,
Dean of the School of Business, Beirut
Wassim Shahin, Ph.D.,
Dean of the School of Business, Byblos
George E. Nasr, Ph.D.,
Dean of the School of Engineering and Architecture
Farid Sadik, Ph.D.,
Dean of the School of Pharmacy
Kamal Badr, M.D.,
Dean of the School of Medicine
Tarek Na’was, Ph.D.,
Dean of Students, Beirut

SCHOOLOF ARTS & SCIENCES

> DEANS

Samira Aghacy, Ph.D., Beirut
Fuad Hashwa, Ph.D., Byblos

> ASSISTANT DEANS

Ramzi Haraty, Ph.D., Beirut
Wald Moubarak, Ph.D., Byblos

SCHOOLOF BUSINESS

> DEANS

Tarek Mikdashi, Ph.D., Beirut
Wassim Shahin, Ph.D., Byblos

> ASSISTANT DEAN

Jim Finlay, Ph.D., Beirut

> CHAIRS

Michel Chalhoub, Ph.D., Management/Marketing/ MIS/International Business, Beirut
Said Ladki, Ph.D., Hospitality Management/ Accounting, Beirut
Salaheddin Abosedra, Ph.D., Economics/Finance, Beirut
Elias Raad, Ph.D., Accounting/Banking and Finance/Marketing, and Coordinator of the Executive Master of Business Administration Program, Byblos
Salpie Djoundourian, Ph.D., Economics/Management, Byblos

ACADEMIC OFFICERS

SCHOOL OF ARTS & SCIENCES

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Fuad Hashwa, Ph.D., Byblos

> ASSISTANT DEANS

Ramzi Haraty, Ph.D., Beirut
Wald Moubarak, Ph.D., Byblos

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Raed Mohsen, Ph.D., Arts and Communication
Samira Korfalli, Ph.D., Natural Sciences
Paul Tabar, Ph.D., Social Sciences
Ahmad Oueini, Ph.D., Education
Nashaat Mansour, Ph.D., Computer Science and Mathematics

Byblos
Costantine Daher, Ph.D., Natural Sciences
Haidar Harmanani, Ph.D., Computer Science and Mathematics
Irma Ghosn, Ph.D., Humanities and Social Sciences

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PRESIDENTS AND ADMINISTRATIVE OFFICERS

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> ASSISTANT DEAN
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Jean Chatilla, Ph.D., Civil Engineering
Maroun Daccache, Ph.D., Architecture and Design
Pierrette Zouein, Ph.D., Mechanical/Industrial Engineering

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Marwan Sheikh Taha, Pharm.D., Pharmacy Practice

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Zeinat Hijazi, M.D., Medical Education

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Walid Touma, Ph.D., Director

INSTITUTE FOR WOMEN’S STUDIES IN THE ARAB WORLD
Dima Dabbous-Sensenig, Ph.D., Director

LIBRARY
University Librarian

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DEANS OF STUDENTS
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Mars Semaan, Ph.D., Byblos

ADMISSIONS
Nada Badran, M.S., Director, Beirut
Michel Najjar, M.S., Director, Byblos

ATHLETICS
Sami Garabedian, M.S., Director, Beirut
Joe Moujaes, B.E., Director, Byblos

FINANCIAL AID
Samir Obeid, M.S., Director, Beirut
Ghada Abi Fares, M.B.A., Director, Byblos

GUIDANCE
Janine Zacca, M.B.A., C.P.A., Director, Beirut
Elie Samia, M.A., Director, Byblos

REGISTRAR
Vatche Papazian, M.S., Registrar, Beirut
Fouad Salibi, B.A., Registrar, Byblos

RESIDENCE HALLS
Hiam Musharrafieh, M.A., Supervisor, Beirut
Suzy Saba, T.S., Supervisor, Byblos

TESTING SERVICES
Mimi Melki Jeha, Ph.D., Director of Continuing Education Program, Byblos
Director of University Testing Services, Byblos
Michel Majdalani, M.B.A., Director of Continuing Education Program, Beirut

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BUDGET & FINANCIAL PLANNING
Sonia Hajjar, M.B.A., Director
GRANTS & CONTRACTS
Sonia Hajjar, M.B.A., Coordinator
COMPTROLLER
Charles Abu Rjeily, Licence, University Comptroller

HUMAN RESOURCES & UNIVERSITY SERVICES OFFICERS

HUMAN RESOURCES
Nabil Semaan, M.S., Director, Beirut
Joseph Michael, D.G.E.S., Director, Byblos

FACILITIES MANAGEMENT
Shaheen Bou Jaoude, B.E., Director, Project Management and Contract Administration
Joseph Shebaya, D.I., Director, Space Management and Renovations
Emile Hanna, M.E., Director, Campus Operations and Maintenance, Beirut
Wissam Mansour, B.E., Director, Campus Operations and Maintenance, Byblos

INFORMATION TECHNOLOGY
Melissa Stockman, M.S., Director, IT Infrastructure and Support
Camille Abounasr, B.E., Director, IT Applications and Solutions
Brigitte Baroudy, B.S., Director, IT Security

BUSINESS SERVICES
Jassem Othman, B.E., Director of Auxiliary Services
Jean Rizk, M.B.A., Director of Supply
Nehmat Aoun, Licence, Director of Hospitality
Caroline Salloum Mouawad, B.A., Campus Hostess
Ahmad Hassouna, Director of Protection
Hassib Hachem, Protection Supervisor

PURCHASING
Antoine Faris, M.S., Director, Byblos

UNIVERSITY ADVANCEMENT OFFICERS

ALUMNI RELATIONS
Abdallah Al Khal, B.S., Director of Alumni Relations

DEVELOPMENT
Samir El-Kadi, M.B.A., Director of Development, Middle East and Europe

MARKETING & COMMUNICATIONS
Peggy Hanna, M.B.A., Director of Marketing and Communications

PUBLIC RELATIONS
Christian Oussi, M.A., Director of Public Relations

INTERNAL AUDIT OFFICERS

INTERNAL AUDIT
Khaled Abu El Husn, M.B.A., C.P.A., Director of Internal Audit
TUITION AND FINANCIAL AID

TUITION AND OTHER FEES

The below list of fees is applicable for the year 2008–2009. This list is subject to change(s) by the University Administration.

(Per credit hour)
B3 Non Lab US$ 365
B2 Lab/Business US$ 452
B1 Computer, Engineering, Pharmacy US$ 469
Gr Graduate US$ 553
EMBA US$ 545
Student Association (per semester) US$ 154
Late Registration Fee US$ 216

Application Fee US$ 50

Dormitory Fees:
Beirut (per semester):
Single US$ 2,800
Shared US$ 1,900

Byblos (per semester):
Single US$ 1,665
Shared US$ 945

Note:
The Beirut dormitories, for the year 2008-2009, are located off campus, and are under the direct supervision of the University.

The dormitories will be available for female and male students on a first-come first-served basis.

Settlement of fees can be made in US Dollars or Lebanese Pounds, at the exchange rate prevailing at the time of payment.

REFUND POLICY

Students are entitled to a full refund (100%) of their tuition, until the end of the Drop and Add period.

No refund is allowed thereafter.

FINANCIAL AID

Achieving educational objectives is, normally, the most important factor for a student who is choosing a university, and selecting a major. Tuition fees, however, may also constitute a key decisive factor.

LAU, in its effort to offer students a better chance to join the University, is committed to making Financial Aid available to needy students. In this respect, and within budget constraints, Financial Aid serves as a means to ensure diversity in the composition of LAU’s student body.

Financial Aid is basically a work-study program, designed to provide an opportunity for full-time students, demonstrating financial need, to earn part of their tuition fees by working at LAU. Loans, scholarships, and grants, are complementary to the Program, when available.

FORMS OF FINANCIAL AID

Once the financial need is determined, Financial Aid, proportional to that need, is granted, in one or more of the following forms:

WORK-AID

All Financial Aid recipients are required to work a certain number of hours in one of the campus offices. Besides helping students cover their financial need, the work-study program helps them acquire work skills, develop discipline, and promote a sense of personal responsibility and accomplishment.

LOAN

The University extends student loans as part of the total Financial Aid package. Loans may be extended to students when requested, and in accordance with the loan procedure. Reimbursements may be spread over nine years, following a three-year interest-free grace period from the date of withdrawal or graduation from the University. After this grace period, a service charge, equivalent to 50 percent of the market credit interest rate, will be charged. Moreover, collection incentives are available for students willing to settle their loans prior to maturity.

TUITION AND FINANCIAL AID

HONOR SCHOLARSHIPS

Honor scholarships are awarded to Financial Aid recipients on a competitive basis. Upon the completion of 24 credits at LAU, with a minimum cumulative Grade Point Average (GPA) of 3.20, the Financial Aid recipient becomes eligible for an Honor Scholarship. An Honor Scholarship that is granted over and above the Financial Aid amount usually ranges between 5 and 30 percent of the tuition, depending on the student’s GPA.

GRANTS

LAU offers a limited number of different Grants that could be awarded, in addition to work-study, and loans, to cover a higher percentage of the tuition fees.

Program Grants: Awarded to students enrolled in certain programs that are announced at the beginning of each academic year. Currently, students majoring in Elementary Education are benefitting from this Grant.

In-service Grants: Awarded to full-time school teachers working towards a Teaching Diploma, on a part-time basis. The Grant amounts to one third of the tuition fees, and is granted on a competitive basis.

Conditional Grants: Awarded to students according to donor conditions.

Dependents Grants: Awarded to dependents of full-time faculty and staff.

APPLYING FOR FINANCIAL AID

To apply for Financial Aid at LAU, a potential student should fill out a Financial Aid Application Form, which is available at the Financial Aid Office. These applications must be taken, and submitted, with required documents, within set deadlines. An interview with the applicant, and a parent, will be subsequently scheduled.

Financial Aid is ordinarily granted for one regular academic year, and may be renewed, upon re-application, if the student’s eligibility is maintained.

FINANCIAL AID DECISION

The University shall grant Financial Aid, within budget constraints, based on a systematic assessment of need, and good academic standing.

Need assessment is done by the campus Financial Aid Committee, according to the Financial Aid Policy, and Guidelines set by the University Financial Aid Council.

OTHER TYPES OF AID AT LAU

MERIT SCHOLARSHIP

To encourage and promote academic excellence, LAU offers Merit Scholarships that cover 100% of tuition, and fees, to a number of outstanding high school students. Merit Scholarships are nominated by their schools and then selected according to set criteria, and have to abide by certain conditions in order to maintain their Grants.

STUDENT EMPLOYMENT

LAU provides additional limited part-time work opportunities to needy students who have acquired work skills. Applications are available at the Human Resources Office. Placement and hourly rate depend on the student’s skills, academic level, and the nature of the job.

GRADUATE ASSISTANTSHIP

Graduate students may apply for Assistantships at the Dean’s office of the School to which the student is applying. Graduate Assistantship covers a portion of tuition fees. In return, students are expected to work a number of hours each week, normally for an academic department. Graduate Assistantships are usually awarded on the basis of academic merit.
CENTERS AND INSTITUTES

INSTITUTE FOR WOMEN’S STUDIES IN THE ARAB WORLD
This Institute was established and sponsored by LAU, and is located on the Beirut campus. The Institute is a center for documentation, research, action programs, and the communication of issues and data, relating to Arab women and children.

CENTER FOR STRATEGIC DEVELOPMENT
This Center is a semi-autonomous, interdepartmental unit of LAU, with headquarters at the Byblos campus. The Center is responsible for coordinating, and managing, all sponsored research and development projects undertaken by the University.

INSTITUTE FOR BANKING & FINANCE
This Institute offers seminars for middle managers, and top executives of financial institutions, who work in increasingly complex and uncertain environments. The Institute’s courses are designed to provide participants with methods to manage their banks’ portfolios in such contexts.

MEDIA TRAINING & RESEARCH INSTITUTE
This Institute aims at becoming the leading institute of its kind in the country, by providing an interactive platform for all the media practitioners, professionals, and students. The Institute also aims at becoming a recognized venue for students of the Arab media, and a permanent training center for journalists, and other media professionals.

INSTITUTE OF FAMILY & ENTREPRENEURIAL BUSINESSES
This Institute develops educational programs to support individuals, and families, in maintaining successful family enterprises. It aims to further the continuity, and prosperity, of Lebanese and Middle Eastern family businesses by conducting research, spreading information, updating professionals, and providing problem solving assistance to family enterprises.

INSTITUTE FOR HOSPITALITY & TOURISM MANAGEMENT STUDIES
This Institute is housed in the School of Business. It conducts applied research to solve particular problems, it identifies factors affecting hospitality, and tourism development, it determines what makes tourism possible, and it investigates how tourism can become an important contributor to the wealth of Lebanon.

HUMAN RESOURCE INSTITUTE
This Institute seeks to provide high-quality human resource development programs to prepare Lebanese and regional employees, and human resource professionals, and their employers, for the future. The activities of this Institute include research of current issues, professional development programs, and comprehensive publications’ programs.

INSTITUTE FOR PEACE AND JUSTICE EDUCATION
This Institute is housed in the School of Arts and Sciences. The Institute’s aim is to forward the culture of peace through courses, training programs, publications, and research, which involves both LAU students and the wider community. Some of the issues addressed include, amongst others, human rights, conflict resolution, inter-faith dialogue, and peace education pedagogy.

SOFTWARE INSTITUTE
This Institute seeks to promote, and disseminate, modern software engineering practices, recent software technology, Lebanese software industry, and to provide advanced, and continuing education, and support research and development, on software engineering and innovative applications.

SUMMER INSTITUTE FOR INTENSIVE ARABIC & CULTURE
This Institute offers courses in language and culture, both through formal instruction and total immersion in an authentic cultural setting. The Program includes weekly trips to historic and tourist sites in Lebanon.

INSTITUTE FOR HOSPITALITY & TOURISM MANAGEMENT STUDIES
This Institute was established to meet the curriculum and reform needs of the Lebanese schools. It keeps teachers abreast of advances, technologies, and methods, and prepares them to tackle the different roles they are expected to play in the classroom.

URBAN PLANNING INSTITUTE
This Institute’s purpose is to address problems of urban growth and environmental change in Lebanon and the Middle East. It aims at assisting certain Lebanese ministries in studies related to planning, zoning, land use, demographic projections, CAD mapping, urban statistics, utilities, conservation and recycling of resources, land management, natural reserves, etc.

INSTITUTE FOR WATER RESOURCES & ENVIRONMENTAL TECHNOLOGIES
This Institute aims at promoting usable technology in the areas of water resources, environmental protection, and agriculture, in the Middle East. It seeks to initiate new ideas and venues for applied research.

CISCO ACADEMY TRAINING CENTER
This Center offers Cisco courses in computer networking, and trains Cisco instructors for the Middle East-North-Africa region. The Center also performs quality visits to regional, and local, Cisco academies in the MENA region. The visits are meant to ensure that these academies are offering high standard Cisco courses, and have the proper manpower, and equipment resources, to perform the work.

INSTITUTE FOR ISLAMIC ARTS, ARCHITECTURE & DESIGN
This Institute is mainly concerned with the investigation, documentation, and interpretation of the material heritage of Islam, particularly as it pertains to the cultural manifestations in the Arab world. The Institute’s mission is to expand the teaching of Islamic art and architecture, to promote excellence in academic research, and to further the understanding of Islamic architecture, and urbanism, in light of contemporary design practices.

INSTITUTE FOR DIPLOMACY AND CONFLICT TRANSFORMATION
This Institute’s mission includes the dissemination of knowledge about diplomacy and conflict management, and its role in international relations. The Institute aims at providing current, and aspiring, diplomats, as well as individuals who are working (or seek work) at international agencies and civil society, with training, on a wide range of issues related to the goals and functions of international diplomacy, protocol, negotiation, decision making, human rights, bargaining strategies and techniques of resolving conflict, and effective representation of political, economic and cultural interests. Moreover, the Institute aims to train members of the business community, and the not-for-profit sector (e.g. NGOs and cultural and academic centers and institutes), to communicate effectively with the representatives of foreign governments, and international and regional organizations.

LEBANESE AMERICAN UNIVERSITY CENTER FOR APPLIED RESEARCH
This Center is the research and development arm of LAU. It is committed to capacity building, and enhancing the University’s capabilities to contribute to Lebanon, and the Middle East Region’s developmental objectives. The Center aims to create a spirit of entrepreneurship, and innovation, and to make LAU a producing, applied research institution. The Center maintains world-class high-quality standards in all its activities, and is service-oriented. It provides services to the community through research and development projects, and to internal constituencies, by means of research logistics support.

INSTITUTE FOR MIGRATION STUDIES
This Institute’s vision is to become a multidisciplinary institute on migration in Lebanon, and the Arab world, with the aim of publishing scholarly works on the subject, and offering a graduate program on migration studies, with a special emphasis on Lebanese migration. In tune with LAU’s Vision, the Institute seeks to offer a superior education, as well as opportunities for rigorous research.