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**SEPTEMBER 2011**
- Friday 3: Orientation day for new entering medical students
- Monday 5: Med I and Med II classes begin (2011-2012)
- Thursday 15-Friday 16: Orientation Program for new students
- Monday 19: Deadline for intercampus transfer for Fall 2011 except for Business
- Monday 19-Friday 23: Advising period for new students
- Monday 19-Friday 23: Registration for new students for Fall 2011
- Friday 23: Registration for returnees who reactivated files for Fall 2011
- Monday 26: Fall 2011 classes begin
- Monday 26-Monday Oct. 3: Late registration with late fees and Drop/Add for Fall 2011

**OCTOBER 2011**
- Tuesday 4-Monday 10: Collection of Statements of Fees period for Fall 2011
- Wednesday 12: Deadline for payment of tuition fees for Fall 2011

**NOVEMBER 2011**
- Sunday 6-Tuesday 8: Al Adha holiday
- Tuesday 22: Independence Day holiday
- Friday 25: Deadline for incomplete grades (from Spring and Summer 2011)
- Saturday 26: Hijra New Year holiday

**DECEMBER 2011**
- Monday 5: Ashoura Day holiday
- Thursday 8: Last day for withdrawing from courses for Fall 2011
- Thursday 15: Deadline for intercampus transfer for Spring 2012 for Business school
- Saturday 24: Christmas and New Year vacation begins (8:00am)

**JANUARY 2012**
- Friday 6: Armenian Christmas
- Monday 9: Christmas and New Year vacation ends. Classes resume (8:00 am)
- Monday 9- Wednesday 11: Advising period
- Wednesday 11: Deadline for intercampus transfer for Spring 2012 except for Business
- Thursday 12-Wednesday 18: Registration for current students for Spring 2012
- Thursday 19: Fall 2011 classes end
- Friday 20-Sunday 22: Reading period
- Monday 23-Wednesday February 1: Final Exams period
- Tuesday 31: Application deadline for Early Acceptance to Medical School

* Tentative dates
# Academic Calendar 2011-2012

## FEBRUARY 2012
- **Saturday 4***: Prophet’s Birthday
- **Tuesday 7-Wednesday 8**: Orientation Program for new students
- **Thursday 9**: St. Maroun’s holiday
- **Friday 10-Tuesday 14**: Advising period for new students
- **Friday 10-Tuesday 14**: Registration for new students.
- **Tuesday 14**: Registration for returnee students who reactivated files (Spring 2012)
- **Wednesday 15**: Spring 2012 classes begin
- **Wednesday 15 - Monday 20**: Late registration with late fees and Drop/Add period for Spring 2012
- **Tuesday 21- Monday 27**: Collection of Statements of Fees period for Spring 2012
- **Wednesday 29**: Deadline for payment of tuition fees for Spring 2012

## MARCH 2012
- **Friday March 30**: Application deadline for Regular Acceptance to Medical School

## APRIL 2012
- **Friday 6**: Western Easter vacation begins (8:00 am)
- **Tuesday 10**: Easter vacation ends (8:00 a.m)- classes resume
- **Wednesday 11**: Deadline for intercampus transfer for Module I for Business School
- **Thursday 12**: Deadline for incomplete grades (from Fall 2011)
- **Friday 13**: Eastern Easter vacation begins (8:00 am)
- **Tuesday 17**: Eastern Easter vacation ends (8:00 a.m)- classes resume

## MAY 2012
- **Tuesday 1**: Labor day holiday
- **Wednesday 2**: Last day for withdrawal from courses for Spring 2012
- **Friday 4**: Deadline for intercampus transfer for Module II for Business School
- **Thursday 3-Saturday 19**: Payment of deposit for fall 2012
- **Monday 7-Friday 11**: Advising period
- **Monday 14**: Deadline for intercampus transfer for Module I for all students
- **Monday 14-Friday 18**: Registration for current students for Module I, Summer 2012
- **Monday 21-Tuesday 22**: Registration for current students for Module II, Summer 2012
- **Thursday 24- Wednesday 30**: Registration for current students for Fall 2012
- **Friday May 25**: Med II classes end
- **Wednesday 30**: Spring 2012 classes end
- **Thursday 31 - Friday June 1**: Reading Period

* Tentative dates
Academic Calendar 2011-2012

JUNE 2012
Saturday 2 - Tuesday 12  Final Exams period
Tuesday 14-Friday 15  Orientation Program for new students
Monday 18-Wednesday 20  Advising period
Monday 18-Wednesday 20  Registration for new students for Module I, Summer 2012
Monday 18  Med III Introduction to clerkships begin
Wednesday 20  Registration for returnees who reactivated files for Module I, 2012
Thursday 21  Module I, Summer 2012 classes begin
Thursday 21-Tuesday 26  Late registration with late fees & Drop/Add period for Module I, 2012
Wednesday 27-Monday July 2  Collection of Statements of Fees period for Module I, Summer 2012
Friday 29  Med I classes end

JULY 2012
Monday 2  Med III and Med IV clerkships begin
Tuesday 3  Deadline for payment of tuition fees for Module I, Summer 2012
Thursday 5  Commencement Exercises - Byblos Campus
Saturday 7-Sunday 8  Commencement Exercises - Beirut Campus
Thursday 12  Deadline for intercampus transfer for Fall 2012 for school of Business
Friday 13  Last day of classes for medical students
Monday 16  Last day for withdrawal from courses for Module I, Summer 2012
Wednesday 25  Module I, Summer 2012 classes end
Thursday 26  Reading period
Friday 27-Saturday 28  Final Exams period
Monday 30  Deadline for intercampus transfer for Module II except for Business
Tuesday 31  Orientation and Advising for new students

AUGUST 2012
Wednesday 1  Registration & Advising for new students for Module II, Summer 2012
Wednesday 1  Registration for returnees who reactivated files for Module II, 2012
Thursday 2  Module II, Summer 2012 classes begin
Thursday 2 - Monday 6  Late registration with late fees and Drop/Add for Module II, 2012
Tuesday 7-Friday 10  Collection of Statements of Fees period for Module II, Summer 2012
Monday 13  Deadline for payment of tuition fees for Module II, Summer 2012
Wednesday 15  St. Mary’s Assumption holiday
Saturday 18-Tuesday 21  Al Fitr Holiday
Thursday 30  Last day for withdrawal from courses for Module II, Summer 2012

SEPTEMBER 2012
Monday 3  Classes for medical students begin (2012-2013)
Monday 10  Module II, Summer 2012 classes end
Tuesday 11  Reading period
Wednesday 12-Thursday 13  Final Exams period

* Tentative dates
# Different dates may apply to the school of Medicine#
Details will be available on LAU web page
Historical Background

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 (AA) and Associate in Applied Sciences (AAS) degrees 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 (BA), Bachelor of Science (BS), Associate in Arts and Associate in Applied Science 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 BA and BS degrees as equivalent to the national Licence. Having accepted men into some AA programs, the college in 1973 changed its name to Beirut University College (BUC). The following academic year five BA/BS majors were opened to male students, and in October 1975 men were admitted into all 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 Am-sheet. 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 decision, BUC became a University in October 1992. In 1994, the Board of Regents in New York approved BUC’s request to change into the Lebanese American University (LAU), reflecting further growth and the addition of several professional schools.

In 1999, the Government granted LAU a license to operate a Medical School and a Nursing School. The first pre-medical students were admitted to LAU in the fall semester of 2006/2007; in fall 2009, the Gilbert and Rose-Marie School of Medicine welcomed its first class of medical students. In September 2007, the Board of Trustees approved the establishment of the School of Nursing; in fall 2010, the Alice Ramez Chagoury School of Nursing welcomed its first class of students.

On May 13, 2010, the Board of Trustees of the New England Association of Schools and Colleges (NEASC) voted to grant LAU initial accreditation with the Commission on Institutions of Higher Education effective November 11, 2009.
Board Leadership

BOARD OF TRUSTEES

Dr. Charles Elachi,
Chair of the Board of Trustees
Dr. Mary Mikhael,
Vice Chair of the Board of Trustees
Mr. Fred Rogers,
Secretary of the Board of Trustees
Dr. Paul F. Boulos
H.E. Amb. Gilbert Chagoury
Rev. Christine Chakoian
Mrs. Eva Kotite Farha
Dr. George N. Faris
Dr. Benita Ferrero-Waldner
Mr. Antoine Frem
Mr. Arthur Gabriel
Dr. Ray Irani
Mr. Wadih (Bill) Jordan
Rev. Joseph Kassab
Mr. Samer Khoury
Mr. Richard (Dick) Orfalea
Mr. Todd Petzel
Mr. Ghassan Saab
Mr. Salim G. Sfeir
Dr. H. John Shammas
Rev. Ronald L. Shive
Mr. Peter Tanous
Dr. George E. Thibault
Mr. Abdallah Yabroudi

Emeritus Trustees

Mr. Jose Abizaid
Dr. Amal Kurban
Mr. Wilbert F. Newton

Ex-Officio Members

Mr. Philip Stoltzfus
Rev. Angad Beblawi
Rev. Fadi Dagher
Dr. Joseph Jabbra, LAU President
Chair of the Faculty Senate

RESPONSIBILITIES

GENERAL DUTIES

The BOARD shall be responsible for seeing that the purpose of the University is met organizationally, administratively, educationally, spiritually, socially, financially, 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 and support or remove the President of the University;
   b. To ensure that an adequate statement of mission and purpose be established;
   c. To assure that an adequate long range plan for the University is developed; and
   d. To assume personal responsibility for 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 purposes; and
   b. To ensure that assets are managed effectively and there are adequate safe-guards 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 it belongs 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 Leadership

OVERVIEW

The Board of International Advisors shall act as an advisor 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.

BOARD OF INTERNATIONAL ADVISORS

Mr. Philip Stoltzfus,
Chair of the Board of International Advisors
Mr. Enan Galaly,
Vice Chair of the Board of International Advisors
Mr. George Doumet,
Secretary of the Board of International Advisors
Mr. Mike Ahmar
Dr. Raymond Audi
H.E. Ivonne A. Baki
Dr. Francois Bassil
Mr. Nicolas Chammas
Mr. Mazen S. Darwazah
Mr. Raphael Debbane
Mr. Neemat G. Frem
Mr. Kanan Hamzeh
Mrs. Maha Kaddoura
Dr. Najib Khatib
Sheikh Fouad El Khazen
Rev. George Mourad
Mr. Charles Muller
Mr. Mazen Nazzal
Mr. Talal K. Shair

Ex-Officio Members

Rev. Fadi Dagher
Mrs. Leila Saleeby Dagher
Dr. Joseph Jabbra, LAU President
Chair of the Faculty Senate
LAU’s Mission, Values and Vision

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

VALUES
In both planning for its future and conducting its daily activities, LAU seeks to act in a manner that is guided by a deeply rooted sense of shared ethical values and aspirations. Built upon this foundation, the university is able to draw its fundamental inspiration from the devotion of its Presbyterian Founders to always seek the truth, respect human dignity, promote gender equality and be inclusive. It also provides educational opportunities as one university with multiple campuses, each with distinctive gifts and attributes. As such, LAU is committed to:

• Providing academic and service excellence throughout the institution
• Demonstrating dignity and respect for and from, the Board, faculty, staff and students, in both word and deed;
• Celebrating the accomplishments and contributions of all the members of the LAU community;
• Succeeding because its people take ownership of, take pride in, and are held accountable for their actions;
• Working together as an extended family community that reflects the highest ethical and moral standards;
• Enabling individuals to find their own spiritual and personal fulfilment, while remaining sensitive to the changing global village in which they live;
• Promoting social connectedness of the students to the country of Lebanon, and encouraging their commitment to social justice and democracy.

VISION
The vision of LAU is driven by its mission and values, and is carried out by:

• 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 state-of-the-art infrastructure and support services that 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
Approved by the Board of Trustees on June 6 & 7, 2003
Amended by the Board of Trustees on March 9 & 10, 2006
Amended by the Board of Trustees on September 14 & 15, 2006
Amended by the Board of Trustees on March 19 & 20, 2009

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, leadership qualities, awareness of responsibility to others, as well as 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;

English is the official language of instruction at LAU.

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, as well as on the university website.

2. Graduation Requirements
Requirements for graduation with a Master’s, Bachelor’s, or an Associate 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 published in the University Catalog.

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

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 (M.B.A.) program are required to take the GMAT exam.
Academic Affairs Policy

B. ACADEMIC SERVICE

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

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

3. 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 bylaws of the university, 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. Faculty should also 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 Faculty.

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 explained in the Personnel Policy Faculty.

   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 50 minutes per week in a regular term, and a prorated duration in 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. The way such material is to be made up is left up to the discretion of the teacher, provided that the period of the suspension of classes does not exceed three teaching days per semester.

   b. The faculty member is responsible to inform the Chair of the division/department who in turn shall forward the information to the concerned Dean.

   c. If the time lost per semester exceeds three teaching days, the University Planning Council shall decide on the time and means of make-up, such as by the extension of semester, Saturday classes, and 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 ten, the semester should be extended to avoid loss of credits, and make-up shall be arranged.
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, in order 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 that is responsive to the region’s educational and social needs.

All students must complete a Liberal Arts Curriculum (see “Liberal Arts Curriculum”), 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.”

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 leading to the following degrees*:

*Please note that all Associate Degrees — A.A. and A.A.S. programs — will no longer be offered effective Fall 2011.

SCHOOL OF ARTS AND SCIENCES

BACHELOR'S DEGREES
Bachelor of Arts (B.A.) in:
- Communication Arts
- Education
- English
- History
- Philosophy
- Political Science/International Affairs
- Political Science
- Psychology
- Social Work
- Teaching Arabic as a Foreign Language
- Teaching English as a Foreign Language

Bachelor of Science (B.S.) in:
- Biology
- Chemistry
- Computer Science
- Mathematics
- Nutrition

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

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

BACHELOR'S DEGREES
Bachelor of Engineering (B.E.) in:
- Civil
- Computer
- Electrical
- Industrial
- Mechanical

MASTER'S DEGREES
Master of Science (M.S.) in:
- Civil and Environmental Engineering
- Computer Engineering
- Industrial Engineering and Engineering Management
Major Fields of Study

SCHOOL OF ARCHITECTURE AND DESIGN

BACHELOR’S DEGREES
Bachelor of Arts (B.A.) in:
• Fine Arts
• Interior Architecture
Bachelor of Architecture (B. Arch.)

BACHELOR’S DEGREE
Bachelor of Science (B.S.) in:
• Graphic Design
• Interior Design

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.)

SCHOOL OF NURSING

BACHELOR’S DEGREE
Bachelor of Science (B.S.) in Nursing

SPECIAL PROGRAMS

CERTIFICATE PROGRAMS
Teaching Diploma (T.D.)
Continuing Education Program

The mission of the Continuing Education Program (CEP) is to offer innovative learning opportunities for future leaders of the business community while enhancing performance, promoting professional advancement, and encouraging achievement. The CEP strives to create an energetic learning environment that fosters both personal and professional growth. The aim is to create and develop innovative and dynamic educational programs while identifying and responding to specific learning needs in a variety of fields.

The Continuing Education Program (CEP) at LAU is best positioned to train the workforce of Lebanon with university-style continuing education programs, combining courses that meet LAU’s commitment to academic excellence while upholding the latest professional industry standards. The CEP promotes professional and ethical practices in continuing education and provides adult learners with material that is applicable, relevant, and up-to-date. The programs focus on developing the specialized skills that are required to compete in today's local, regional, and international workplace.

CE PROGRAMS

I. LANGUAGES

I.1. English Language Courses
- Program One: English Preparatory Courses
- Program Two: English Proficiency
- Program Three: English for Professionals
- Program Four: English for Healthcare Professionals

I.2. Arabic Language Courses

II. ENTRANCE EXAM COURSES

II.1. SAT
II.2. GMAT

III. CEP CERTIFICATE PROGRAMS

III.1. Business Management Program
III.2. Executive Office Management
III.3. Preschool Education
III.4. Professional Fitness Diploma
III.5. Capacity Building for NGOs
III.6. Graphic Design

IV. PROFESSIONAL CERTIFICATE PROGRAMS

IV.1. Chartered Financial Analyst (CFA®)
IV.2. Certified Information Systems Auditor (CISA®)
IV.3. Certified Information Security Management (CISM®)
IV.4. Professional in Human Resources (PHR®)
IV.5. Senior Professional in Human Resources (SPHR®)
IV.6. Certified Public Accountant (CPA®)

V. OTHER CEP COURSES

V.1 Computer Courses
V.2 Art Courses
V.3 Physical Education Courses
V.4 Non-credit Courses for Suspended Students

VI. TAILORED CORPORATE TRAINING PROGRAM

VI.1 Workshops Offered

VII. CEP OUTREACH

VII.1 CEP Entrance Exam Preparation Program
VII.2 CEP and the Makassed Philanthropic Islamic Association partnership
VII.3 CEP and Creation Learning Center - Homs Syria and Unlimited Horizons Center - Damascus Syria

VIII. SUMMER CAMP PROGRAM

IX. SUMMER INSTITUTE FOR INTENSIVE ARABIC LANGUAGE AND CULTURE - SINARC

In many of the offered programs, students have the option to enroll in individual courses or register for the full program.
Continuing Education Program

I. LANGUAGES

I.1. ENGLISH LANGUAGE COURSES

Program One:
Special English Preparatory Courses

The special English preparatory courses provide instruction to non-native speakers of English. These courses are given on the basis of sixteen hours per week. They range from teaching basic language skills to beginners to helping advanced students refine their English in preparation for higher education, vocational training, or a career. In addition, this program will help students prepare for the EEE SAT admission tests. All levels focus on strengthening reading, writing, listening, and grammar skills.

Contact hours per course:

Fall and Spring Semesters: 12 weeks, 16 hours per week
Summer Semester: 8 weeks, 16 hours per week

English Level I
Students at this level:

• Learn to enhance their verbal skills and participate in simple conversations
• Begin to read simple material about familiar topics
• Begin to write about simple and standard topics

English Level II
Students at this level:

• Learn to converse about day-to-day topics and areas of special interest
• Read general texts and some specialized readings with good comprehension
• Write with some fluency about a range of familiar day-to-day topics

English Level III
Students at this level:

• Understand spoken English in many day-to-day settings involving familiar topics
• Participate in conversations covering a range of topics
• Read a variety of standard and professional material with good speed and comprehension

• Write about topics of personal interest and a variety of social issues

English Level IV
Students at this level:

• Can easily participate and engage in conversations in professional settings
• Can easily read a variety of materials with a high degree of comprehension and speed
• Can write about familiar topics, specialized topics of personal interest, and areas of expertise
• Are prepared to take university entrance exams (EEE/TOEFL/SAT)

Program Two: English Proficiency

Business English:
contact hours: 12 weeks, 8 hours per week

This course focuses on various English language skills. The objective is to improve the proficiency of participants in English within the framework of business. The coursework focuses on reading business texts and learning professional grammar and writing structures so that students can convey messages in the business field efficiently and effectively.

Business Correspondence:
contact hours: 12 weeks, 4 hours per week

This course focuses on examining the various areas of business correspondence, while presenting an overview of the styles and formats appropriate to each. Participants will learn to communicate in business settings with confidence. By the end of the course, participants will be able to professionally correspond by writing business letters, memos, and reports.

Program Three: English for Professionals

English Writing Skills:
contact hours: 4 weeks, 6 hours per week

This course focuses on improving basic writing skills. It aims to enhance the skills of those who have strong listening comprehension skills, but are unable to express themselves satisfactorily. This course will improve the skills of those who spend too much time writing too few lines and end up dissatisfied with what they have written.

Conversational English Course:
contact hours: 8 weeks, 6 hours per week
Continuing Education Program

This course focuses on fluency in a business environment. Candidates will learn to express themselves clearly and confidently in various work situations, conferences, or business meetings. They will be introduced to the six most predominant situations of conversation, and in the process, learn business terminology, vocabulary, and idiomatic expressions.

Public Speaking:
contact hours: 4 weeks, 6 hours per week

This course focuses on the elements of public speaking and the obstacles that students may face, including shyness and a lack of language mastery. This course encourages students to develop the oratory skills that are needed in everyday conversational contexts. Candidates will learn techniques to overcome obstacles and present their speech in a professional, correct, and impressive manner.

Program Four: English for Health Care Professionals

This customized English program is tailored to the specific needs of today’s medical professional. It focuses on the language as it is used by practitioners in the field. It targets healthcare institutions, health care centers, health care NGOs, medical centers, and hospitals.

I.2. ARABIC LANGUAGE COURSES

This program is designed for non-native speakers of Arabic and focuses on the Lebanese dialect and/or classical Arabic. It provides the student with proficiency in all areas including speaking, reading, writing, and listening. Basic, intermediate, and advanced levels of instruction are offered. Students may start the program at any time, take as many hours as needed, and schedule the hours according to request. This flexible program has two options:

1. Tutorial (one-on-one)
2. Group (2-3 participants)

II. ENTRANCE EXAM COURSES

The majority of higher educational institutions require that applicants take one or more of the recognized standardized exams. These exams test students’ aptitudes in a number of different areas including quantitative, verbal, analytical thinking, and time management. The tests are designed to provide academic institutions with a benchmark to judge a student’s acquired knowledge as well as future academic potential. The courses offered by the CEP help students prepare for these exams by reviewing and applying basic mathematical, grammar, and syntax skills and learning optimal strategies to ensure success on the examination.

II.1. SAT I - MATHEMATICS:
contact hours – 48

This course focuses on the SAT mathematical section and covers many concepts including exponential growth, absolute value, and functional notation. It also places emphasis on topics such as linear functions, manipulations with exponents, and properties of tangent lines. Other key topics include numbers and operations, algebra and functions, geometry, statistics, probability, and data analysis.

SAT I –English:
contact hours - 48

This course focuses on the English section of the SAT test and covers two sections, critical reading and writing. The critical reading section, formerly known as the verbal section, includes the reading of numerous passages where students are asked questions based on information directly stated or implied in the text. The writing section tests students’ ability to identify and use proper grammar and word choice.

**see also the English Language Courses Section – English Preparatory Courses

II.2. GMAT:
contact hours - 28

This course focuses on the GMAT which is a standard requirement for admission into graduate MBA programs. The GMAT exam consists of three main parts: the Analytical Writing Assessment (AWA), the Quantitative section, and the Verbal section. The CEP offers a GMAT preparatory course that focuses on building and using the necessary skills for the various questions through both lab and exam simulation settings.
Continuing Education Program

III. CEP CERTIFICATE PROGRAMS

The certificate programs focus on developing overall industry knowledge so that participants will be more informed and better prepared to pursue employment in today’s workplace. Topics are updated on a regular basis to address the new challenges and trends in the business environment.

III.1. PRINCIPLES OF BUSINESS MANAGEMENT:

Contact hours per course: 12 weeks, 3 hours per week

The Business Management Program is composed of nine fundamental courses. The candidate must complete six of the nine classes in order to be eligible for the certificate. Participants seeking professional development may enroll in any of the listed courses and receive a statement of completion at the end of the course. Topics are updated on a regular basis to address the new challenges and trends in the business environment.

Introduction to Business Principles
This course gives candidates a basic introduction to the business environment. Topics include basic business functions, accounting, finance, management, marketing, and economics.

Fundamentals of Human Resources Management
This course provides a practical and realistic approach to the study of human resource management with emphasis on the interrelationship between various human resource functions. Key topics include strategic human resource management, social responsibility and business ethics, job analysis and human resource planning, recruitment, training and development, career planning, performance appraisal, and compensation and benefits.

Accounting for Non-Accountants
This course introduces the Generally Accepted Accounting Principles (GAAP), assets, liabilities and owners equity, preparation of financial statements, and completion of the accounting cycle. Key topics include the building blocks of accounting, GAAP assumptions-basic accounting equation, the recording process, adjusting the accounts, completion of the accounting cycle, accounting for merchandising operations, and inventories.

Basic Marketing Skills
This course familiarizes students with the marketing environment covering the marketing mix (product, price, promotion, and distribution). Key topics include elements of the marketing mix, marketing process, and legal and social environments.

Consumer Behavior
This course focuses on the understanding of various factors that influence consumer buying behavior. Key topics include an overview of current trends in the field, an in-depth analysis of consumer motivation, a focus on buying behavior and how it influences marketing strategies, a review of the internal and external environments, and the strategic initiatives that can be developed to address these issues.

Basic Management Skills
This course studies the functions of business management including planning, organization, leadership, decision making, and controlling. Key topics include the dynamic new workplace, the decision making process, environment and diversity, global dimensions of management, information and decision making, planning and decision making, strategic management, organizing as a management function, organizational structures, and leadership.

The ABCs of Economics
This course introduces students to the principles of supply and demand, monetary and fiscal policies, and national income. Key topics include the nature and scope of economics, consumer behavior, theory of the firm, price determination, and allocation of resources.

Finance for Non-Financial Managers
This course provides an overview of the different applications of tools and techniques to analyze businesses' financial problems. Key topics include working capital management, capital budgeting, organizational financial policies, and conduct of business enterprises.

Business Statistics
This course provides an understanding of statistical data, time series, frequency distributions, probabilities, charts, and surveys. Key topics include probability, random variable, sampling theory, estimation, hypothesis testing, correlation and regression, time series, and index numbers.
Continuing Education Program

III.2. EXECUTIVE OFFICE MANAGEMENT

This one-year program is designed to develop the necessary office management skills for future professional Executive Office Managers. The course focuses on building key technical capabilities and communication skills to ensure organizational efficiency. To be eligible for a certificate, the candidate should complete the program within one year.

English Language:
contact hours: 12 weeks, 8 hours per week

This course focuses on improving various English language skills. The objective is to enhance proficiency within the framework of business correspondence. The focal point of the course is on reading business texts, and learning professional grammar and writing structures so that students may convey messages more efficiently and effectively.

Introduction to Business Principles:
contact hours: 12 weeks, 3 hours per week

This course gives candidates a basic introduction to the business environment. Topics include basic business functions, accounting, finance, management, marketing, and economics.

Office Computer Applications:
contact hours: 12 weeks, 1 hour per week

This course introduces basic information systems theory and practice through office software applications such as Excel and Word.

Business Correspondence:
contact hours: 12 weeks, 4 hours per week

This course focuses on examining the various categories of business correspondence, and presenting an overview of the styles and formats appropriate to each. The participants will learn to communicate within a business setting with confidence. By the end of the course, participants will be able to generate business letters, memos, and reports.

Office Management and Behavioral Skills:
contact hours: 12 weeks, 2 hours per week

This course introduces students to the general functions required in the office environment including mail handling, filing systems, information channeling, email, internet usage, organization of meetings, appointments, and communication skills.

Management of Office Finance:
contact hours: 12 weeks, 3 hours per week

This course provides students with knowledge about daily financial transactions including cash and trade discounts, promissory notes and simple discount notes, compound interest and present value.

Office Computer Applications:
contact hours: 12 weeks, 3 hours per week

This course provides students with more advanced knowledge about office software applications such as advanced Excel and powerpoint.

III.3. PRESCHOOL EDUCATION:

contact hours: 442 hours over a year and a half and 100 hours of practical experience.

This teacher-training program is designed to prepare students for employment and career advancement in the field of early childhood education. The aim of the program is to provide students with sufficient knowledge and practical skills to plan and implement developmentally appropriate programs for children from 2 to 6 years of age in various types of childcare settings. Throughout this one-year (three-semester) program, trainees will develop and update their teaching methods and earn a certificate.

Courses Offered:

• Grammar and Writing I, II and III
• Reading and Oral Fluency I and II
• Introduction to Early Childhood Education
• Field Practice I
• Learning with Music and Movement
• Issues in Early Childhood Math, Science, and Technology
• Literature in Early Childhood Education
• Field Practice II
• Art and the Young Child
• Emergent Literacy
• Developmental Curriculum and Program Planning
• Management in Early Childhood
• Child Safety Health & Nutrition
• Child Development Foundations
• Introduction to Computers and Applications
Continuing Education Program

III.4. PROFESSIONAL FITNESS DIPLOMA
Health and fitness remain among the fastest growing industries in today’s world. This has led to considerable investment in health clubs, spas, weight loss, and beauty clinics. Such investments are not only common in Lebanon but throughout the Middle East. With this rapid growth, specialists who possess good physical and athletic performance along with a scientific background are currently in great demand. The changing needs in society combined with the increasing demand for certified and qualified trainers make the LAU Professional Fitness Certification Program a great opportunity for students who are seeking a professional career in the health and fitness sector.

Courses Offered:

Fall Semester
- Human Anatomy (42 hours)
- Exercise Physiology (42 hours)
- Biomechanics of Weight Lifting (42 hours)
- Group Fitness Class (42 hours)

Spring Semester
- Nutrition for Health & Performance (42 hours)
- Health Fitness Training (42 hours)
- Athletic Fitness Training (42 hours)
- Fitness Management (42 hours)

Summer Semester
- Post Rehabilitation Training (42 hours)
- Fitness Marketing (42 hours)
- Internship (60 hours)

III.5 CAPACITY BUILDING PROGRAM FOR NON PROFITS:
Contact hours: 18 hours per module, 3 hours per week

This program’s emphasis is on NGO management and development which provides participants with working knowledge of the managerial, financial, and organizational aspects of non-profit organizations. It also focuses on issues related to the private sector such as the Corporate Social Responsibility and its relation with NGOs.

Courses Offered:
- Introduction to Non-Profits
- A Guide to Fundraising
- Social Marketing & Corporate Social Responsibility
- Strategic Planning
- Financial Management
- Concept Paper & Proposal Writing
- Monitoring & Evaluation
- Project Management
- Social Media
- Working With Volunteers
- Organizational Leadership

III.6 GRAPHIC DESIGN
This program prepares students, through a variety of design software, to combine words and images to create a visual representation of ideas. It targets recent graduates in graphic design, working professionals and individuals interested in managing projects using print and web design.

The certificate requirements are met once the student completes the core courses and one of the three modules.

Core Courses
- Adobe Photoshop
- Adobe Acrobat Professional
- Microsoft Windows
- Internet Explorer

Modules
- Module 1: Graphic Print and Design (Adobe Illustrator, QuarkXPress, Adobe InDesign)
- Module 2: Web Design (HTML, Adobe Dreamweaver, Adobe Flash)
- Module 3: Design and Drafting: Architecture and Designing (3D Studio Max, AutoCAD 2D, AutoCAD 3D, Adobe Illustrator)

Course Offered
- Adobe Photoshop (50 hrs)
- Adobe Acrobat Professional (12 hrs)
- Microsoft Windows (12 hrs)
- Internet Explorer (12 hrs)
- Adobe Illustrator (30 hrs)
- QuarkXPress (30 hrs)
- Adobe InDesign (36 hrs)
- HTML (36 hrs)
- Adobe Dreamweaver (40 hrs)
- Adobe Flash (40 hrs)
- 3D Studio MAX (72 hrs)
- AutoCAD, ACAD (2D 60 hrs -3D 30 hrs)
Today’s work environment is becoming increasingly competitive. Globalization, as well as new advances in education, technology and business practices, is forcing workers to update their skills and regularly acquire new ones. Certificate programs offer experienced and aspiring professionals an opportunity to develop new skills that will increase their value in the job market. The CEP offers a number of internationally recognized certificates that will help individuals realize their career goals. These programs provide a cost-effective and flexible alternative to obtaining a formal degree and many are designed to specially meet the needs of working professionals.

IV.1 CHARTERED FINANCIAL ANALYST (CFA®) PREPARATORY COURSE
contact hours: 173 hours, 47 sessions (2 sessions per week, 3 hours per session) and a 4 day boot camp

The CFA is the most globally recognized and valued credential in the field of finance. It provides evidence of professionalism and excellence in investment management. The successful completion of the program with at least one examination will give the candidate an opportunity for career advancement in the financial sector. The charter allows entry into several fields including risk management, investment banking, equity analysis, portfolio management, fixed income, and investment advising.

Exam/Course Topical Outline (see www.cfainstitute.org)
- Ethical and Professional Standards (9 hours)
- Quantitative Methods (24 hours)
- Economics (18 hours)
- Financial Reporting and Analysis (30 hours)
- Corporate Finance (9 hours)
- Equity Investments (15 hours)
- Fixed Income (15 hours)
- Derivatives (9 hours)
- Alternative Investments (6 hours)
- Portfolio Management and Wealth Planning (6 hours)

IV.2 CERTIFIED INFORMATION SYSTEMS AUDITOR (CISA®):
contact hours: 10 weeks, 2 times a week

In a joint effort between LAU, a leader in business education, and ISACA, a world-renowned global organization for information governance, control, security, and audit professionals, the Certified Information Systems Auditor (CISA®) and Certified Information Security Manager (CISM®) review courses are now being offered through the CEP.

The CISA certification demonstrates the individual’s expertise and knowledge in information systems audit, control, and security. Holders of the CISA certification have an awareness of the unique requirements particular to information technology environments.

Exam/Course Topical Outline (see www.isaca.org)
- The Process of Auditing Information Systems (6 hours)
- IT Governance and Management (6 hours)
- Information Systems Acquisition, Development and Implementation (9 hours)
- Information Systems Operations, Maintenance and Support (9 hours)
- Protection of Information Assets (9 hours)

IV.3 CERTIFIED INFORMATION SECURITY MANAGER (CISM®):
contact hours: 10 weeks, 2 times a week

The CISM designation targets individuals with information security management responsibilities. Although there are many IT security credentials, the CISM remains the only one designed to assess the skills and knowledge of information security managers.

Exam/Course Topical Outline (see http://www.isaca.org)
- Information Security Governance (8 hours)
- Information Risk Management (8 hours)
- Information Security Program Development (8 hours)
- Information Security Program Management (12 hours)
- Incident Management and Response (8 hours)
Continuing Education Program

IV.4 PROFESSIONAL IN HUMAN RESOURCES (PHR®)

contact hours: 105 hours, 35 sessions, 2 times a week

The Professional in Human Resources (PHR®) and Senior Professional in Human Resources (SPHR®) are the two most internationally recognized certifications. Through the PHR® and SPHR® designations, HR practitioners can advance their careers, prepare for increased responsibilities, and play a leadership role in supporting their organization’s goals.

Exam/Course Topical Outline
(see http://www.hrci.org)

- Strategic Management (21 hours)
- Workforce Planning and Employment (21 hours)
- Human Resource Development (15 hours)
- Total Rewards (18 hours)
- Employee and Labor Relations (18 hours)
- Risk Management (12 hours)

IV.5 SENIOR PROFESSIONAL IN HUMAN RESOURCES (SPHR®)

contact hours: 105 hours, 35 sessions, 2 times a week

IV.6 CERTIFIED PUBLIC ACCOUNTANT (CPA®):

contact hours: 135 hours, 2 times a week

A direct result of globalization is the increasing need for accounting professionals worldwide. Companies are looking for employees who have mastered advanced accounting knowledge and practice, including the International Financial Reporting Standards (IFRS) and the Generally Accepted Accounting Principles (GAAP). A designation in Certified Public Accounting (CPA) is a mark of excellence that meets this market demand and enhances the individual’s opportunities for career growth. CPAs are distinguished from other accountants by the certification’s strict requirements which demand education, examination, and experience.

For more information: http://www.cpa-exam.org

Exam/Course Topical Outline (see http://www.aicpa.org)

- Auditing and Attestation
- Business Environment and Concepts
- Financial Accounting and Reporting
- Regulation

V.1 COMPUTER COURSES

Computer Basics:
36 hours per course

These computer courses are offered at many different levels, from the beginner to the more advanced. The goal is to build skills in business application software (word processing, spreadsheet and data base management), hardware concepts, and software integration.

Computer Graphics:
20 hours per course

These courses are tailored for those who wish to keep abreast of new technology. Offerings include Web Page Design using Front-Page, Photoshop and Illustrator, Animation using Flash, Web Page Design, Visual Interdev, and Quark Xpress. Once students complete all five courses, they are able to design an interactive Web Page using the various software applications. A certificate is issued upon the completion of each course.

V.2 ART COURSES

Art:
36 hours per course

The CEP offers art courses for personal enrichment. Courses are offered in painting, drawing, photography, pottery, jewelry craftsmanship, home decoration, and guitar appreciation.

V.3 PHYSICAL EDUCATION COURSES

Physical Education:
24 hours per course

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

IV.4 NON-CREDIT COURSES FOR SUSPENDED STUDENTS

Non-credit Courses for Suspended Students

This program is designed to keep suspended students engaged in classroom activities. There are four non-credit courses offered that students may take during the period of their suspension from the university. These courses are graded on a pass/fail basis.
Courses Offered:

- Stress and Time Management (42 hours)
- Introduction to Business (42 hours)
- Study Skills & Communications (42 hours)
- Logic and Methods of Reasoning (42 hours)

VI. TAILORED CORPORATE TRAINING PROGRAM

The CEP organizes tailored workshops and seminars to meet organizational training needs. Trainings have been delivered to companies in a wide range of industry sectors. The strength of the corporate training programs lies in the ability to customize the training material to the clients’ needs. In addition, the capacity building and quality control mechanisms allow the CEP to handle large numbers of on-site training.

In addition, many of the on-site corporate training programs and workshops are designed around the working schedules of individuals and employees. All training materials are created with clearly defined learning objectives that include skills, knowledge, and abilities.

VI.1 WORKSHOPS OFFERED

- The Lebanese Labor Law-One day, 6 hours
- The Lebanese Law of Contracts-One day, 6 hours
- The Legal Setup of Corporations-One day, 6 hours
- Time Management-One day, 6 hours
- Critical Thinking and Problem Solving-One day, 6 hours
- Conflict Resolution-One day, 6 hours
- Business Etiquette-Half a day, 4 hours
- Microsoft Office Suites, for Beginners, Intermediate and Advanced, Various hours

VII.2 CEP AND THE MAKASSED PHILANTHROPIC ISLAMIC ASSOCIATION PARTNERSHIP

An outreach partnership that offers several education and training programs for recent Makassed graduates, alumni members, and any individual interested in joining the workforce or pursuing higher education. These programs are open to all Makassed students, boys and girls, who have successfully completed and passed grade nine.

The CEP offers five certificate based programs at the Makassed School for Girls at the Bachoura area
- English Language Program with SAT Preparation
- Preschool Education Program
- Executive Office Management Program
- Business Management Program
- Graphic Design Program

For the programs topical outline and information (see http://cep.lau.edu.lb/al_makassed.php)

VII.3 CEP, CREATION LEARNING CENTER (HOMS SYRIA ) AND UNLIMITED HORIZONS CENTER (DAMASCUS SYRIA )

Three Banking programs are offered on specialized skills for excellence in Syria in the area of:
- Banking Management
- Islamic Banking and Finance,
- Insurance, and Islamic Insurance (Takaful).

For programs topical outline and details (see http://cep.lau.edu.lb/cep_strategic_partners.php)

VIII. SUMMER CAMP PROGRAM

The CEP offers a six-week summer camp for children 6 to 12 years of age. The well-rounded program and experienced staff provide an extraordinary summer experience for children. Participants engage in various activities including cooking, basketball, tennis, music, drama, gymnastics, Wushu, art, swimming, storytelling, and board games.

The Little Business Leaders Program teaches children 9 to 12 years of age how to start a
Continuing Education Program

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 such as drama, art, swimming, tennis, wushu, basketball, cooking, chess, and water polo.
Campus Facilities

Campus facilities services are committed to providing quality service to students, faculty, staff and visitors while upholding the University’s mission and values. The goal is to deliver facilities management services in an efficient, cost-effective manner while maintaining excellent customer relations.

Although many resources are available across campuses for specific needs, the following are broadly available to all students to help them pursue academic goals and achieve greater skills for life-long learning: University Library, Smart Classrooms, Computer Labs, Writing Centers, Learning Centers, Laboratories, Auditoriums, Exhibition Halls, Gymnasiums, outdoor playing fields and ball courts that offer opportunities for outdoor sports and recreational activities such as football, tennis, basketball, volleyball, indoor swimming pool, aerobic studios, dancing rooms, workshops, common areas, cafeterias, student housing, IT and Computing, multi-purpose activities areas, etc.

Looking into the future, the development of a comprehensive Campus Master Plan that outlines the growth of the campus was endorsed and always reviewed to maintain the alignment with LAU’s vision. The Campus Master Plan lays out a long-range plan for the physical development of campus in size, form, character, image and environment. It includes proposed new building growth while at the same time addressing replenishment of buildings and defining outdoor spaces that unify all functions of the University.

BEIRUT CAMPUS

LAU’s 25,368 square meters, built up areas of 54,235 square meters and 4,000 square meters of greenery, in the heart of a residential neighborhood in Ras Beirut, provides the perfect surroundings for our campus facilities, from Sage Hall, our first building dating to 1933 to our newest facility, the Library and Business School, completed in 2005.

Currently, 12 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 in reliance with the Master Plan.
In the Spring of 1987, the University was given 113,000 square-meter plot of land in Blat, offering views of both the hillside and the downtown of Bylos City. An additional 7,385 square meter plot, to house two dorms, was purchased later on to make the total area of the Campus about 172,000 square meters with a built up area of 40,740 square meters and 8,000 square meters of greenery. The Byblos Campus is a home for 12 buildings; each of these structures provides space and facilities for vital functions that are distinctive and complementary to the academic programs.

The ideal climate, historic landmarks, numerous attractions, city environment and fast road network provide an inviting campus environment for an institution of higher learning.

Underway, we have several capital projects under execution, the Medical and Nursing Schools Building that consists of constructing a 15,500 m² story building located at the center of the upper Byblos Campus. It houses academic and modern simulation labs, research labs, multi-disciplinary research labs, a large anatomy lab, a 200-seat auditorium, smart classrooms, high-tech case method rooms, exam rooms, a medical library and reading lounges, open interactive space, a cyber cafe, etc. The other project consists of constructing a five story 19,000 m² Underground Parking that will eventually house around 625 cars. Additionally, 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.

Looking ahead, the envisaged constructions in Byblos Campus will include the Gibran Khalil Gibran Library and Engineering Workshops and Labs Building.
Student Life

STUDENT & UNIVERSITY POLICY

The Lebanese American University is committed 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.”

OFFICE OF THE DEAN OF STUDENTS

Drawing its inspiration from the Lebanese American University’s mission to educate the whole person, the Office of the Dean of Students is charged with providing students 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 service and personalized attention.

1. New Student Orientation (NSO)

The new student orientation program is organized by the Office of the Dean of Students in the beginning of the Fall and Spring of each semester in order to acquaint new students with university life in order to become active members of the LAU community.

NSO aims to:

- introduce students to various academic programs, services and activities that will support their academic and personal success;
- orient students towards advising and registration;
- introduce students to the main resources available on campus;
- address issues and problems that students may face; and
- introduce parents to LAU regulations and procedures to ensure transparent and ongoing communication.

2. Counseling Services

Counseling is designed to help students address academic, personal, and emotional concerns. Counselors meet with students on a regular basis to:

- discuss different problems students are facing which might have negative effects on their academic progress;
- provide help to students with non-academic problems, thus developing needs assessment and evaluation forms;
- evaluate different cases and decide on referrals to professionals as needed;
- keep detailed, accurate and updated records of all cases; and
- follow up on existing and previous cases to minimize future problems.

3. Professional Advising Services

Professional advising aims to help students overcome academic difficulties, probationary status, and concerns regarding academic issues. Through individual meetings, the academic advisors help students to identify the factors that contribute to their academic difficulties and try to give them the right academic advice.

Advisors meet regularly with students to:

- provide accurate information regarding policies, procedures, regulations, educational options, major and minor requirements, curricula, registration procedures, deadlines, etc...
- advise students to repeat courses in which they failed;
- refer students to available programs, or support services, when needed;
- help students understand the purposes, opportunities, and challenges of higher education;
- advise freshman students in matters related to meeting the requirements of the schools for major declaration, fulfilling the requirements of the Ministry of Higher Education for the equivalence of the Lebanese Baccalaureate, transitioning from high school to college, etc.;
- act promptly on progress reports sent by the faculty to help students with difficulties;
- guide students in planning courses of action to correct academic difficulties;
- respond to parents’ inquiries;
- cooperate with Academic Advisors to solve students’ problems; and
- encourage students to join LAU activities and clubs.

The professional advisors coordinate with the career advisor in order to help students understand how their interests, abilities and passion can predict success in the academic and career fields that they are considering, and then helping them to choose their academic and career goals accordingly.
4. Career Guidance Services

Career guidance is provided to Graduate and Undergraduate students. The Career Advisors encourage students to explore career options, develop effective planning skills, create job plans, identify career goals, and learn the necessary skills to succeed in chosen professions. Courses of action are recommended, based on the objectives expressed by students.

The Career Advisors work 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; and
- 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. Moreover, Career Guidance collaborates closely with the Alumni Office to help meet the employment needs of recent graduates and long-term alumni.

5. Health Services

The Health Services office at LAU provides primary health care to students and serves as an information resource for the campus community through its organization of several health-related campaigns each year.

The Health Services offices operate under the supervision of full time registered nurses.

The offices provide the following services when the university is in session:

- Acute illness evaluation and treatment
- Emergency assistance and first aid
- General medical/nursing care
- Medications supply of over-the-counter drugs for emergency relief
- Blood pressure checks
- Blood sugar level assessment
- Eating disorder and nutritional consultation
- Health counseling and education
- Health promotion programs and information
- Referrals to community health-care providers or specialists
- Verification of absences to professors and release of a signed notification of extended absence due to medical reasons.

All consultations and medical records are kept completely confidential. No information is ever discussed with or released to anyone without the patient’s consent. Medical records and academic records are not connected in any way.

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, international affairs, and many others in different areas of students’ interests. The Office of the Dean of Students coordinates the formation of clubs, and Faculty Advisors provide assistance towards achieving club objectives.

7. International Student Program And National Cultural Clubs

With over eighty nationalities represented on its campuses, LAU has developed programs to help international students adapt to the Lebanese way of life, as well as to fully integrate into the University community. Through various national cultural clubs, students network with peers from their countries, while learning to appreciate and celebrate diversity. LAU celebrates the richness of such diversity through annual activities such as the International Heritage Day Exhibitions, International Students Athletics Tournament, and others.

8. Student Honor Society

LAU students with a cumulative GPA of 3.5/4.0 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 Cumulative GPAs in each school receive a financial award during the ceremony.

9. Student Publications

The Office of the Dean of Students coordinates, and supervises, the production of publications, such as the Trireme (Yearbook), the Student Agenda, and other publications that help students become more acquainted with relevant services and information, including regular Health Awareness publications and others.
10. Student Representation

LAU has 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 Student Council:

- represents the students in the regulation and coordination of all phases of student governance;
- promotes the LAU’s highest interest;
- cultivates its culture as stated in its mission and vision;
- advances the welfare of the LAU student population;
- enhances campus atmosphere and life through extra-curricular activities; and
- acts as an effective liaison between the students, faculty, staff and administration.

11. Athletics Office

LAU’s athletics program plays a vital role in the academic and extracurricular life of students. The program’s mission is to provide athletic training, education, and competition opportunities for LAU students. The LAU Athletics Office offers a wide range of extra-curricular and sports activities, which are well suited to the needs of our students and the LAU community.

The following sports/activities are currently offered: Aerobics, basketball, fitness, folk dance, Thai kickboxing, Latin dance, Jazz dance, swimming, table-tennis, taekwondo, tennis, track & field (whenever possible), soccer and volleyball (all for men & women), and men’s handball and rugby league.

Throughout the year, the LAU Athletics Office organizes intercollegiate, intramural, high school, and international tournaments, in addition to participating in other local, regional and international events. Most of the varsity teams get exposed to high-level competition, locally and internationally, and play in a regular championship league season against some of the officially recognized universities and colleges in Lebanon. At the end of each academic year an Athletics Awards banquet is held to recognize and honor LAU’s best and most dedicated athletes and coaches.

12. Residence Halls

LAU provides Residence Halls for its students on both campuses.

In Beirut, Orme-Gray Residence Hall is for females and Capital Suites for males. In Byblos, the Byblos Residence Hall has two separate wings, one for men and one for women. On each campus, a residence hall supervisor and a team of assistants run the dormitories, and provide social and extra-curricular activities for resident students. The facilities are comfortable, contributing to the students’ academic and social needs.

In Beirut, the rooms are nicely furnished with beds, desks, cupboards, safety boxes, bed sheets, covers, cable TV, internet connection, telephones, central heating and air conditioning. Fully equipped kitchens and common room with washing/drying/ironing etc. The dorms also have lounges equipped with piano, TV, computers with Internet connections and vending machines.

In Byblos, the rooms are also nicely furnished with beds, desks, cupboards, safety boxes, bed sheets, covers, refrigerators, TVs, telephones… Wireless internet, cable, and individual heating and air conditioning are available in all rooms and apartments. All the apartments have a living room and a fully equipped kitchenette. Fully equipped kitchens and laundry rooms are in all the wings. The hall also provides cleaning and maintenance services, 24-hour security, a lounge equipped with cable TV, DVD player, Play Station, billiard table, computers, free internet access, and vending machines. The common areas are all monitored round-the-clock by CCTVs. Student resident assistants live on-site and help familiarize residents with the buildings and available resources as well as hall policies.

Students who wish to reside on campus must submit an application as soon as they are accepted to LAU.

OUTREACH AND CIVIC ENGAGEMENT

STUDY ABROAD AND INTERNATIONAL EXCHANGE:

LAU is an official member of two prestigious higher education international networks, the Institute of International Education [IIE] and the Council on International Educational Exchange [CIEE] thus putting LAU on the map of international institutions and linking it to a network of over a thousand universities worldwide. Furthermore, the office hosts presentations and talks given by embassies
and institutes highlighting their international programs which give the chance to students to network and be exposed to countless international opportunities.

VOLUNTEERISM AND THE OCE:

One of the main aims of the Outreach and Civic Engagement Unit is to bridge the gap between LAU and the communities around it. Through its various range of activities, workshops and fundraisers, the OCE encourages and empowers students to reach out and become agents of constructive change in their society.

LAU NGO Fair:

Each year LAU presents an NGO (Non Governmental Organization) fair for students at the university, with the aim of instilling in students the importance of community service and volunteer work.

By bridging the gap between students and civil society, the fair presents NGOs with a platform to educate students about their work, and students are given the unique opportunity to channel their creative potential, energy and passion into the meaningful conduits of constructive social work.

Active participation from the NGO community in Lebanon ensures that the LAU NGO Fair bridges the gap between the various constituencies of Lebanon, and encourages them to work together for a brighter future. The second LAU NGO Fair, in April 2011, hosted 92 national and international organizations on the Beirut campus.

LAU UN Day:

The LAU UN Day is a yearly event in which all United Nations (UN) agencies in Lebanon participate. The main goal of the LAU–UN Day is to introduce the UN to students, as a beacon of humanity, social development, cultural heritage and humane connections, and not only a political tool.

During the day, students are given the chance to network and learn more about the UN system in Lebanon, while also being exposed to potential internship/volunteering opportunities.

THE LAU YOUTH LEADERSHIP PROGRAM:

With the motto “Youth Teach Youth,” the LAU Youth Leadership Program is an initiative developed by the Outreach and Civic Engagement division at LAU.

This program targets Grade 7 and 8 students from both public and private schools whereby participating students are trained by LAU student leaders who have undergone extensive training and embody leadership traits. The program challenges students’ perceptions on the meaning of leadership, and sheds light on the importance of humility, teamwork, character building and learning.

This year, the Outreach and Civic Engagement division partnered with Al Safadi Foundation to bring this program to 136 students from 27 schools in Tripoli and 103 students from 25 schools in Saida. Furthermore the OCE planned a workshop with the Bishop Philippe Shebaya Foundation in Bsharre and the Shouf National College in Baakline 2011 and reached a total of 340 students between both regions.

LAU Model United Nations: A School of Leadership “Par Excellence”

Every year, LAU invites top high school students from around Lebanon to participate in the university’s Global Classrooms LAU Model United Nations program, established in 2005.

Students attend a series of training sessions about UN procedures, negotiations and public speaking skills, caucusing, and position paper and resolution writing. The program bestows on participant’s global cognition about international diplomacy and proven leadership skills.

Participation has surged from 541 students and 76 schools in 2006 to about 1,300 students and 125 schools in 2010. A once in a lifetime opportunity is given every year to five high school students to participate in the international High School Model United Nations conference, held by the United Nations Association of the United States of America in the UN headquarters in New York.

THE LEADERSHIP AND U MAGAZINE

The Leadership and U Magazine is a student run magazine that provides student leaders with a space to report on leadership as they see it in the environment around them.

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 students, for the Fall semester, the Spring Semester, or the Summer terms.
Admission to undergraduate programs

GENERAL ADMISSION REQUIREMENTS

Applicants must submit the following:

a. The Admissions Application Form, available at the Admissions Offices or online at www.admissions.lau.edu.lb
b. The High-School grades of the last three years. The grades should be sent in a signed and sealed envelope, directly to the Admissions Office. The grades of the last year, or semester should also be sent as soon as they become available.
c. The official scores of the SAT exams and the proof of English proficiency.
d. A photocopy of the Identity Card or Passport (this should be the same as the nationality to be used in the registration).
e. Two recent passport-size coloured photos.
f. A non-refundable application fee of $50 (L.L. 75,000) payable either in cash, by check drawn on a Lebanese or US bank or by credit card.
g. The official Secondary School Certificate and its official Lebanese Equivalence, as soon as they become available.
h. The Official Freshman enrolment permission and/or the Official exemption from Arabic (issued by the Ministry of Education in Lebanon), if applicable.
i. Transfer applicants must submit an official transcript of grades, and a catalogue from all the colleges, or universities, they have attended. Undeclared transcripts will not be accepted after enrolment.

ENGLISH PROFICIENCY REQUIREMENTS

English is the official language of instruction at LAU and applicants must demonstrate their proficiency in the language by taking one of the following tests:

a. English as a Foreign Language (TOEFL)
b. English Entrance Exam (EEE) administered by LAU, which may be repeated at a one month interval.
c. SAT I Writing.

For minimum required test scores, please contact our Admissions Offices.

ADMISSION TO THE SOPHOMORE CLASS

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

a. Holders of one of the four types of the Lebanese Baccalaureate:
   i. General Science
   ii. Life Science
   iii. Economics and Sociology
   iv. Literature and Humanities
b. Holders of the Technical Baccalaureate
   Applicants under this category may only choose programs in the same area of specialization as those 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 such as the French Baccalaureate, the International Baccalaureate, the German Abitur and the Tawjihieh.
   Lebanese applicants under this category must obtain an official equivalence from the Lebanese Ministry of Education.
d. Applicants who have successfully completed two years of the CEGEP (Collège d’enseignement général et professionnel) in Québec, Canada.
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.

Please note that above applicants with a 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.

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
Admission to undergraduate programs

completed one year of the CEGEP (Collège d’enseignement général et professionnel) in Québec, Canada.

d. Holders of the International Baccalaureate certificate from outside Lebanon.

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

Lebanese applicants 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 enrol in a foreign program. To obtain this permission, the applicant must show evidence of having studied outside Lebanon, for at least two years, at the intermediate and secondary level, or three years at the elementary level. The applicant should sit for the SAT I prior to admission but may choose to take the SAT II exams, during the Freshman year i.e. the first year of enrolment at LAU.

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:

a. Mathematics 2C
b. Two sciences from Biology, Chemistry, or Physics

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

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

ADMISSION OF TRANSFER STUDENTS

a. Students who have successfully completed 12 credits will not have to sit for any Placement Exams. Students who have successfully completed less than 12 credits have to sit for the SAT I.

b. Transfer applicants must submit official transcripts of records, as well as academic catalogues from all the previous colleges, or universities, they have attended, along with the application for admission.

c. The School concerned and the Registrar’s Office evaluate the credits and determine the acceptability of courses to transfer. This is usually made before the time of registration.

d. Transfer students coming from an institution of higher education recognized by LAU where English is the language of instruction, are not required to take the EEE or TOEFL. However, if they had not taken any transferable 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 institution of higher education recognized by LAU where English is not the language of instruction, are required to take the EEE or the TOEFL.

e. Transfer students coming from an institution of higher education not recognized by LAU may be conditionally accepted after satisfying the English requirements for admission at LAU. If accepted, their admission will be on probation with no transfer of credits. They must complete 12 new credits in the first semester of enrolment at LAU, 6 of which must be major courses, and achieve a minimum GPA of 2.50/4.00. Then, they may petition to the School concerned for transfer of credits if applicable.

ADMISSION TO PROFESSIONAL SCHOOLS FOR A SECOND DEGREE

Applicants for the second degree must complete all the requirements of the School in which they intend to enroll.

VALIDITY OF ACCEPTANCE FOR ADMISSION

Acceptance at LAU is valid for one semester. Admitted students who do not register will need to fill out and submit a “Reactivation Application” at the Admissions Office.

SPECIAL PROGRAMS

Special Students are those who are eligible for admission, and choose to take courses for credits, without working towards a degree. Students under this category 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 institution of higher education recognized by LAU, where English is not the language of instruction, are required to pass the EEE, or the TOEFL.

3. The Professional Schools are the School of Pharmacy, Medicine and Engineering.
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. 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 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 C and below 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.

C. FRESHMAN STUDENTS REGISTRATION IN SOPHOMORE COURSES

All students enrolled in a Freshman program who only lack ENG 102 to complete their Freshmen requirements, may be allowed by the University Admissions Council to declare a major. These students must register in ENG 102 during the first term of their registration in the new major. Lebanese students, and students who are required to have the equivalent of the Lebanese Baccalaureate II, must have passed the SAT I and SAT II examinations with the required scores, prior to being admitted to a major. Students in this category who fail to pass the ENG 102 course in the first term of registration in the new major, are required to complete 3 additional non-Freshman credits, over and above the requirements for the Bachelor degree.

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 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, 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 upon advisor’s consent.

E. ENGLISH REQUIREMENTS
1. Entering Freshmen and Sophomores, with a score between 500 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 (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 enrol 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.

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. Students registering in some courses that span both summer modules (1 & 2) may register for more than 7 credits per module but not to exceed 14 credits total for both modules.
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 they are 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:
1. A cross-registered course will not be allowed for a repeat.
2. The course will be treated as a transfer course.
3. 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.

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 10th week of the Fall and Spring semesters, and before the last seven 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 re-register 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.

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).

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 10 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:

- Lecture courses: 40 students
- Language and Seminar courses: 25 students
- Studio, Lab, Internship, and Physical Education courses: 20 students

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). 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.

B. CODE OF CONDUCT DURING EXAMINATIONS

Students are expected to abide by the Code of Conduct during all the examinations. For more details on the conduct during examinations, kindly refer to the Student Code of Conduct.
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.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
</tr>
<tr>
<td>C-</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
</tr>
<tr>
<td>P</td>
<td>No quality points</td>
</tr>
<tr>
<td>NP</td>
<td>No quality points</td>
</tr>
<tr>
<td>U</td>
<td>No quality points</td>
</tr>
<tr>
<td>W</td>
<td>No quality points</td>
</tr>
<tr>
<td>I</td>
<td>No quality points</td>
</tr>
</tbody>
</table>

- 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.
- 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.

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>x</th>
<th>Points</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARA201 Arabic</td>
<td>D</td>
<td>3</td>
<td>x 1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BIO101 Biology</td>
<td>A</td>
<td>4</td>
<td>x 4</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>ENG102 English</td>
<td>C+</td>
<td>3</td>
<td>x 2.33</td>
<td>6.99</td>
<td></td>
</tr>
<tr>
<td>CST201 Cultural Studies</td>
<td>B-</td>
<td>3</td>
<td>x 2.67</td>
<td>8.01</td>
<td></td>
</tr>
<tr>
<td>HLT201 Basic Health</td>
<td>F</td>
<td>1</td>
<td>x 0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
<td>34</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. Dismissal from the university and being dropped from a program will apply only if the repeated course is required in the major, specifically named in the LAC requirements, or required as a remedial course.

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 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.

2. Requirements for the Bachelor’s Degrees
   a. Holders of the Lebanese Baccalaureate, or any official certificate equivalent to the Lebanese Baccalaureate, who are admitted to the Sophomore class, are required to complete a minimum of 92 credits, excluding Freshman-level and remedial courses.
   b. Students entering as Freshmen:
      A minimum of 122 credits are required of all students entering as Freshmen. Non-Lebanese students entering as Freshmen need to complete the freshman requirements before switching to a BA/BS program. Lebanese students entering as Freshmen need to get the equivalence of the Baccalaureate, after completing the freshman requirements and before switching to a BA/BS program. Students cannot register in Sophomore level courses before completing the freshman requirements. After completing the freshman requirements, students will be considered as Sophomore students, and will be required to complete a minimum of 92 credits, excluding Freshman level and remedial courses.
   c. Credits for Baccalaureate II Equivalence:
Credits taken in a semester at the end of which the Baccalaureate II equivalence is granted, and which are in excess of the 30 credits used for the equivalence, will not be counted towards graduation. These extra credits should not be of Freshman level. Freshman courses taken after the Baccalaureate II Equivalence will be counted within the credits required for the major. Freshman courses taken after the Baccalaureate II Equivalence will not be counted towards graduation.

Transfer students who can obtain the Baccalaureate II Equivalence but are missing some LAU Freshman requirements will have to make up for the missing credits.

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. Students holding a BA/BS degree who are transferring to LAU from institutions of higher learning that require a Liberal Arts core will have their Liberal Arts courses waived, except for the English requirements where LAU regulations shall apply. The School of Arts & Sciences will decide with regard to the Liberal Arts courses of BA/BS students transferring from other institutions whose curriculum does not include a Liberal Arts core.

f. A minimum of 36 credits in a major, plus any additional courses required by the major.

g. 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.

h. A minimum cumulative GPA of 2.00 in the major courses is required.

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

j. 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.

k. 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.

I. Special rules pertaining to specific programs may apply and are listed under the program requirements in the Academic Catalog.

3. 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.

A student should declare at the Registrar’s Office the minor he/she is pursuing as soon as possible, but no later than the deadline for the Application for Graduation (Clearance). The courses required for the minor at the time a student declares it shall apply. All the special cases will be handled by the School where the minor is offered.

4. 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 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 and 3.49, are placed on the Honor List. If the GPA is in the range of 3.50 and 4.00, they are placed on the Distinguished List. The above applies, provided the students have no incomplete grades, nor is their cumulative GPA below 2.00. Courses taken on a Pass/No Pass basis are not considered among the 12 credit hours.

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 level, 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 major.

X. ACADEMIC SUSPENSION

Students on Academic Probation will be suspended if they fail to remove the Probation in two consecutive semesters of enrolment at LAU (Summer modules excluded), regardless of any Incompletes and semester Withdrawal.

Students with two consecutive Probations, and whose cumulative GPA is below 2.00 will not be suspended at the end of the semester, only if they achieve the following:

A term GPA of 2.20, in a minimum of 12 attempted credits, totalling 26.4 quality points. If the student attempts less than 12 credits, a total quality points of 26.4 or more would still be required.

Students who may petition for a one semester grace period are those who lack 12 or less credit hours to graduate, and whose GPA for graduation is within possible reach in that one semester’s grace. Such students who are given this chance and do not complete all the requirements for graduation, will be suspended.

Students who can avoid suspension upon changing the major may do so at any time.

Students with two consecutive Probations will not be allowed to register if they have an Incomplete grade.

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-enrolment.

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 who passes 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 readmitted, and are dismissed.

Students who have been suspended twice, will not be readmitted, 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

Admission to one of the Graduate Programs at LAU is granted on a selective basis to students who have demonstrated distinct academic ability and motivation by meeting at least the minimum requirements described below. Meeting these requirements however does not guarantee admission to the university.

ADMISSION REQUIREMENTS

Applicants must submit the following:

a. The Application Form, available at the Admissions Offices or online at www.admissions.lau.edu.lb

b. Official Transcript of grades from all colleges or universities attended, 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)\(^2\), or the English Entrance Exam (EEE) administered by LAU, which may be repeated at a one month interval.

f. Applicants to the MBA must submit the official scores of the Graduate Management Admission Test (GMAT).

g. Applicants to the graduate programs in the School of Arts and Sciences and the School of Engineering must submit the official scores of the GRE (it is mandatory for the MA, MS, and MSE programs).

h. Applicants to the School of Medicine must submit the official score of the MCAT

i. A photocopy of the Identity Card or Passport (should be the same as the nationality to be used in the registration).

j. Two recent passport-size colored photos.

k. A non-refundable fee of $50 (L.L. 75,000) payable either cash or by check drawn on a Lebanese or US bank.

l. An interview with the Graduate Admissions Council is required for the applicants to the School of Medicine and may be required to the other graduate applicants.

For minimum required test scores, please contact our Admissions Offices.

ADDITIONAL ADMISSION REQUIREMENTS TO SPECIFIC PROGRAMS

a. Applicants 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 to the MSE programs in Engineering must be holders of a BS or BE degree in Engineering).

b. 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 a university recognized by LAU. A minimum score of 101 in IBT, 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 purpose, written in English, as well as two essays on a literary subject; one should be written in English, and the other in the candidate’s second language, should be submitted when applying.

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

DOCTOR OF PHARMACY (PHARM.D.)

Applicants to the Doctor of Pharmacy program should hold a Bachelor of Pharmacy Degree from an Accreditation Council for Pharmacy Education (ACPE) accredited college or university. Applications are submitted to the School of Pharmacy, and all applicants are subject to an interview by the School’s Admissions Committee.

SPECIAL GRADUATE & UNDERGRADUATE (not applicable to graduate programs in the School of Engineering)

a. 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.

1. All submitted documents become the property of LAU and will not be returned.

2. Applicants taking the TOEFL should sit for the international test. Institutional TOEFL is not accepted at LAU. When registering for TOEFL please use LAU’s code 2595 or 0954 for the GMAT.
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.

b. 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 Undergraduate. 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.

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 institution recognized by LAU, 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 Graduate Program in which a student is enrolled. A request for the transfer of credits should be filed at the Registrar’s Office, during the student’s first semester of residence and the petition shall be reviewed by the Department/Division/School concerned.

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 otherwise they will be dismissed.
Academic rules and procedures for graduate programs

I. REGISTRATION

1. REGISTRATION

Registration is required of all students in accordance with the University’s 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.

1.1. ADVISING

Upon admission, students will be assigned Academic Advisors who will assist them in planning an appropriate course of study. At a later date, students choosing to undertake a project or a thesis will be assigned a Thesis / Project Advisor.

1.2. COURSE LOAD

The normal course load for a full-time student is 9 credit hours per semester and the maximum is 12 in regular semesters and 6 in summer. Graduate students with a full or part-time employment are strongly advised to take a reduced load.

For information about course load allowed in case of graduate assistantship, check section 6.2 (Rights and obligations).

1.3. CROSS-REGISTRATION

A student may request permission from the concerned School / Department to cross-register at another institution of higher education that is of academic standing comparable to LAU if a course needed for the student’s graduation is not offered at the university, provided that the number of credits transferred / cross-registered does not exceed the number of credits allowed to be transferred as stated in section 3.4 (Transfer of credits).

1.4. AUDITING

Only candidates who have satisfied all the admission requirements may audit graduate courses. Auditing will only be permitted when places are available.

1.5. PROGRAM SHIFTS

Any shift from one graduate degree program at LAU to another requires submission of a new application for admission.

1.6. COURSE CHANGES AFTER REGISTRATION

Course changes after registration are permitted subject to the following provisions:

a. Any course change must be made during the “Drop and Add” period.

b. Students will get no refund for courses dropped after the “Drop and Add” period.

c. All course changes which increase the student’s tuition obligation will be noted by the Business Office, and the added fee shall be collected before the change is finalized; changes decreasing the tuition obligation are subject to the Refund Policy.

II. ACADEMIC RULES AND PROCEDURES

2.1. GRADING SYSTEM

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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality Points</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
</tr>
<tr>
<td>C-</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
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</tr>
<tr>
<td>F</td>
<td>0</td>
</tr>
<tr>
<td>P</td>
<td>Pass*</td>
</tr>
<tr>
<td>NP</td>
<td>No Pass*</td>
</tr>
<tr>
<td>U</td>
<td>Audit*</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawal*</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete*</td>
</tr>
</tbody>
</table>

*Not computed in the Grade Point Average (GPA)
Academic rules and procedures for graduate programs

- **Grade A**: Indicates work of excellent quality (4 points per credit hour).
- **Grade B**: Indicates work of good quality (3 points per credit hour).
- **Grade C**: Indicates work of unsatisfactory quality (2 points per credit hour).
- **Grade D**: Indicates work of poor quality (1 point per credit hour).
- **Grade F**: Indicates work of unacceptable quality (0 point per credit hour).
- **Grade W**: Indicates official withdrawal from a course after the late registration period and within the withdrawal deadline.
- **Grade P**: Indicates that the student has successfully passed the defense of the Thesis / Project.
- **Grade NP**: Indicates that the student has failed to pass the defense of the Thesis / Project.
- **Grade I**: Indicates an incomplete work. Grade 'I' is exceptionally given by the course instructor when a student with a valid excuse did not complete some of the course requirements.
  
  To be entitled to an 'I' grade, a student should have fulfilled the minimum attendance condition and completed a minimum of 60% of the course requirements with a satisfactory grade. An 'I' grade does not count in the Grade Point Average.

For information on the procedure for removing an “I” grade, refer to section 3.7.

2.2. ACADEMIC STANDING AND PROBATION

Graduate students are considered to be in good academic standing if they maintain a cumulative GPA of 3.00 on all graduate coursework. Students whose GPA falls below 3.0 at any time after the first nine credits will be placed on probation. Only one probation (besides probation upon admission) is allowed during a graduate program.

2.3. DISMISSAL

a. Students on probation must get back into good academic standing (GPA ≥ 3.00) upon the completion of nine credits. Otherwise they will be dismissed from the program in which they are enrolled.

b. Students who have at any time two repeats and more than two grades of C+ or lower will also be dismissed from the program in which they are enrolled.

c. Any student who earns an F on any 3-credit course will also be dismissed from the program in which he/she is enrolled. For 1 or 2-credit courses, please refer to the specific rules of the different programs (such as EMBA)

2.4. TRANSFER OF CREDITS

A maximum of 6 graduate credits for 30-credit programs and a maximum of nine credits for 39-credit programs may be transferred from another institution of higher education that is of academic standing comparable to LAU or from other LAU graduate programs. This rule applies also to graduate courses taken at LAU in the student’s undergraduate program over and above the total number of credits required for graduation. Transferred credits apply only to courses with a grade of B or above. Unless otherwise specified in the specific requirements of a program (such as Engineering Program), transferred credits should not have been used for another degree required for admission to the graduate program in which the student is enrolled. A request for transfer of credits shall be submitted to the Registrar’s Office during the student’s first semester of residence. The request shall be reviewed by the Department / School concerned, and the decision communicated to the Registrar’s Office.

2.5. COURSE SUBSTITUTION

A student may substitute up to 6 graduate credits for an equal number of credits. A request for approval of such substitution shall be submitted to the Registrar’s Office. The request shall be reviewed by the Department / School concerned and the decision communicated to the Registrar’s Office.

2.6. ATTENDANCE REGULATIONS

Regular attendance is required of all graduate
students. A student who misses more than one-third of class hours in a course for any reason is advised to withdraw from the course within the official withdrawal deadline otherwise a grade of F will be assigned.

2.7. REMOVAL OF AN INCOMPLETE GRADE
In order to have a grade of ‘I’ changed to a regular grade, the student must complete all requirements within one calendar year unless otherwise indicated in the specific program. If the requirements are not duly completed, the grade of “I” will turn into “F”.

2.8. WITHDRAWAL FROM COURSES
If a student withdraws officially from a course before the withdrawal deadline set for the semester, a grade of ‘W’ is assigned. The student must submit a withdrawal form to the registrar’s office within the set deadline.

Only one withdrawal is allowed from any given course. The second withdrawal from the same course will result in an “F”.

2.9. REPETITION OF COURSES
a. Graduate courses with grades less than C may not be used towards graduation. Any required course with grade below C should be repeated.

b. During their course of study, students may repeat one or two courses in which a grade of ‘B’ or less has been earned, depending on the graduate program in which they are enrolled. It is allowed to repeat a maximum of one graduate course in 30-credit programs, and a maximum of two graduate courses in 39-credit programs. In either case, the higher grade(s) will be counted in the determination of the grade point average.

2.10. 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, will receive “W’s” for all the courses in progress.

2.11. TIME LIMIT
Students must complete all requirements for a Master degree within six years from their first registration in graduate courses. Students who exceed this time limit must submit a petition to request extension. In such a case their program of study must be revalidated. Revalidating a program by the concerned Department / School may imply taking additional courses and / or repeating outdated ones. Revalidation is granted for one time only and the new requirements must be completed according to a prorated time period. Under no circumstances the extension time may exceed one year.

Once a student’s program is revalidated, the student and the academic Advisor must prepare a course completion plan that must be reviewed for approval by the Department and the School. The Registrar must be notified about the revalidation and completion plan in writing.

2.12. ACADEMIC INTEGRITY
The University fosters an atmosphere of high integrity by maintaining an ongoing dedication to honesty and responsibility. Any act of lying, cheating, plagiarism, deliberate misrepresentation, theft, scientific fraud, dishonesty or ill use of other human beings is a blatant violation of this Code and will be treated as such.

2.12.1. PLAGIARISM AND FALSIFICATION OF RESEARCH MATERIAL
Plagiarism is using 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 one’s own 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 and falsification or forging of research material or data are serious academic offenses subject to disciplinary action by the faculty and/or the Department / School concerned. The severity of the disciplinary action is determined according to the extent of the act. The disciplinary action could range from resubmitting the work with penalty to dismissal from the program. At the request of the faculty, the Dean of Graduate Studies / Dean of the School shall issue a written warning. A copy of the warning will be kept in the student’s file and at the Registrar’s office.

### 2.12.2. CHEATING

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 Department / School concerned, at the request of the faculty. A copy of the warning will be kept in the student’s file and at the Registrar’s office. A score of zero on an exam resulting from cheating must be counted in the student’s course grade.

Students caught cheating for the second time in the same course will receive a grade “F” in the course. The act of cheating will be recorded and included in the student’s file.

### III. THESIS AND PROJECT

#### 3.1. THESIS

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

#### 3.2. PROJECT

The Project shall be based on substantial applied work, involving, for example, critical literature review, experimental or analytical studies, development of kits / systems, empirical testing of theories, etc. ...

#### 3.3. REGISTRATION AND TIME LIMIT

Students may register for the Thesis / Project at any time after completion of 12 credits. Before registration, the student should have secured the consent of a faculty member to serve as Thesis / Project Advisor. Once registered for the thesis / project, a student must complete a thesis within two calendar years, and a project within three regular semesters (not counting the Summer).

Registration for thesis / project will allow students to retain their status with the University for two years / three semesters with no additional tuition fees provided that the student re-registers every term (for zero credits and no fees) if they are not taking other courses. Past that date, students allowed to have a thesis or project extension by the School Academic Council will be required to register for a residence fee (0 quality point), and to pay for 50% of one graduate credit per semester.

#### 3.4. GUIDELINES

a. A student seeks a faculty member’s consent to serve as the Thesis / Project Advisor. The Advisor should be a full-time (or retired) faculty member at the professorial rank in the concerned Department. The Dean approves the selection of the Advisor, based upon the recommendation of the Department Chair.

b. A Thesis Committee shall be made up of three members, and a Project Committee of two members including the Advisor.
Academic rules and procedures for graduate programs

c. The Thesis / Project Advisor and student jointly form the Thesis / Project Committee. At least one member of the Thesis Committee (besides the Advisor) must be a full-time faculty in the Department / School concerned. The Advisor, shall chair the Committee.

d. The role of the Thesis / Project Advisor is to guide the student’s work until the completion of thesis / project. The role of the other Committee members is to review and assess the student’s work. The Committee members shall be kept informed of the progress of the thesis / project.

e. Students must successfully defend their thesis proposal before the members of their Thesis Committee normally within the first semester in which they register for the thesis. Once the Proposal is approved, the Thesis Advisor notifies the Office of the Dean of Graduate Studies / Dean of School concerned using the Thesis Proposal Form (Appendix B1. Thesis Proposal Form).

f. The grade for a thesis / project can be Pass, or No Pass (P or NP). The grade does not contribute to the G.P.A.

g. Throughout their work on thesis / project, students may petition to shift to another option as allowed in the concerned program (see Appendices on Program specific Rules and Regulations)

1. Students shifting from Project to Thesis option will be required to pay only for the extra credits, provided that the student remains with the same Advisor.

2. Students shifting from Thesis to Project / Course(s) option will pay for the additional courses.

3. The changes above shall be made at least one semester before graduation, and shall carry the approval of the Department / School.

3.5. CONFLICT OF INTEREST
A Faculty member shall not serve as the Thesis / Project Advisor or on the Thesis / Project Committee of a student that is either a family member or a business associate. In such cases where the academic circumstances require that a faculty member serves on the Thesis / Project Committee or be the Thesis / Project Advisor, the Faculty shall secure the prior written approval of the Dean of Graduate Studies/Dean of School concerned.

N.B. Family member: 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.

Business associate: One in which the Faculty member serves as an officer, director, partner, trustee, owner, or controlling stockholder of an organization related to the student.

3.6. PREPARATION AND SUBMISSION OF THESIS / PROJECT REPORTS
a. Theses/Projects shall be written and prepared as specified in the “Thesis and Project Format Guidelines” (Appendix A)

b. The student should submit the manuscript to the Thesis / Project Committee members prior to the announcement of the defense. Appendixes A and B are available at the University Graduate Council (UGC) section of the LAU website.

3.7. PROCEDURES FOR THESIS DEFENSE AND PROJECT PRESENTATION

3.7.1. THESIS DEFENSE
a. The Thesis Advisor sets the date of the defense in consultation with the student and the Committee members. The Advisor then notifies the Department Chair and School Dean, in writing, about the details (student’s name, title and abstract of the thesis, date and place of the defense) for the announcement of the defense.

b. The thesis defense should be public and the date shall be announced by the concerned School Dean at least two weeks in advance.

c. The thesis defense session shall start by the candidate giving a public presentation. This will be followed by an open question / answer / debate session. The Thesis Committee will then deliberate in private in the absence of the candidate to reach a final decision.
d. The result of the defense is reported on the Thesis Defense Result Form (Appendix B2). If the Committee recommends changes, the student shall deliver the corrected / changed thesis manuscript to the Advisor within a period that shall not exceed one month. The Advisor must verify that the corrected version complies with the Committee’s requested corrections. The Thesis Approval Form (Appendix B3) is then signed (on 5 copies) by all Committee members. The Advisor submits the Thesis Approval Form and the Thesis Defense Result Form to the Dean of Graduate Studies / Dean of School concerned.

3.7.2. PROJECT PRESENTATION
Each Department / School will set its own guidelines for Project presentations. Once the Committee approves the project, members should sign the Project Approval Form (Appendix B4), which should be included in the final approved project report.

3.7.3. SUBMISSION OF THESIS AND GRADING

a. The candidate must provide the Library with two copies (one soft in PDF format on a CD and one hard copy) of the final approved manuscript of the thesis for format verification and binding. Each copy should include a completed and signed Thesis Approval Form (Appendix B3). The librarian shall fill and sign the Library Clearance Form (Appendix B5). Besides the student’s copy, two copies of the thesis report will remain at the library, and one copy should be sent to the Thesis Advisor.

b. The Advisor sends the grade / Change-of-Grade form together with the duly filled and signed Thesis / Project Approval Form and Library Clearance Form to the Registrar’s Office, after securing the Department Chair’s and the School Dean’s signatures.

IV. CLEARANCE FOR GRADUATION

Students shall apply for graduation at the beginning of the semester in which they expect to graduate. They shall fill out the appropriate form at the Registrar’s Office. Candidates for graduation will be officially notified of any requirements that they have not completed.

V. GRADUATE ASSISTANTSHIP

5.1. OBJECTIVES
Graduate assistantship is intended to enhance students’ educational experiences, through providing academic services to their Department / School, such as teaching and research. In return, a percentage of their tuition fees is waived.

5.2. RIGHTS AND OBLIGATIONS

a. To be eligible for graduate assistantship, a student shall take a minimum of 6 credits and a maximum of 9 credits in the Fall and Spring semesters and a minimum of 3 credits and a maximum of 6 credits in Summer. Students who are left with one course to graduate may be granted assistantship during that last semester.

b. Students with the status of special undergraduate and students on probation are not eligible for graduate assistantship.

c. Graduate students granted full (100%) assistantship are entitled to 100% tuition waiver. In return, the student is required to provide twenty working hours per week.

d. For partial assistantship grants, the percentage of tuition waiver and the number of weekly work hours are prorated.

e. Graduate assistants are not entitled to the benefits granted to University Faculty and Staff members according to the Personnel Policy.

f. The tuition waiver does not cover any repeated course, irrespective of the reason for repeating it, including withdrawal.

g. Only graduate courses are covered by the assistantship tuition waiver. Undergraduate courses taken as pre-requisite, remedial or complementary courses are not, except in cases to be approved by department / school.
5.3. APPLYING FOR GRADUATE ASSISTANTSHIP

Eligible graduate students interested in graduate assistantship shall submit an application to their Department / School within the specified deadline. Decisions on the applications are made by a committee appointed by the Department / School and chaired by the Department Chair / School Dean. The committee shall assign graduate assistantship grants taking into consideration the allocated budget. Decisions are to be recorded in minutes of meetings and communicated to the applicants and to the Business Office in writing. The assistantship contracts are to be signed by the Department Chair and the Dean, as well as the student.

5.4. SELECTION CRITERIA

Graduate assistantships are granted on a competitive basis and guided by the following criteria:

- GPA and Entrance Exam scores.
- The student’s interests and skills fit departmental needs for teaching, research, or other duties.

To renew their graduate assistantship, students must keep a good academic standing, and must have performed assigned duties satisfactorily in the preceding semesters, as determined by the supervising faculty’s positive evaluation. Evaluation is performed every semester using a Departmental / School form.
Freshman requirements

FRESHMAN ARTS REQUIREMENTS (30 CREDITS)

Freshman students admitted to Bachelor of Arts programs are considered “freshman arts” students, while those admitted to Bachelor of Science programs are considered “freshman science” students. However, freshman students on the Graphic Design, Interior Design or Business majors can choose to complete either set of requirements.

<table>
<thead>
<tr>
<th>Course</th>
<th>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</th>
<th>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>CHM101</td>
<td>General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>MTH111</td>
<td>Basic Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>BUS105</td>
<td>Business Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>Freshman Math</td>
<td>3</td>
</tr>
</tbody>
</table>

Any one of the following Social Science courses (3 credits):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO201</td>
<td>Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECO202</td>
<td>Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>POL201</td>
<td>Introduction to Political Science</td>
<td>3</td>
</tr>
<tr>
<td>PSY201</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC201</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
</tbody>
</table>

Free Electives (1 or 2 credits)

FRESHMAN SCIENCE REQUIREMENTS (32 CREDITS)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM101</td>
<td>General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>MTH101</td>
<td>Calculus I</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 II</td>
<td>3</td>
</tr>
<tr>
<td>PHY111</td>
<td>Mechanics</td>
<td>4</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>
</tbody>
</table>

* Freshman students who are exempted from Arabic by the Admissions council can substitute the Arabic course(s) with:

SAR111 Standard Arabic I
SAR112 Standard Arabic II

Liberal arts curriculum

Any one of the following Social Science courses (3 credits):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO201</td>
<td>Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECO202</td>
<td>Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>POL201</td>
<td>Introduction to Political Science</td>
<td>3</td>
</tr>
<tr>
<td>PSY201</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC201</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
</tbody>
</table>

LIBERAL ARTS CURRICULUM OBJECTIVES

Mission

The mission of the Liberal Arts Curriculum is to foster the education of the cultured and civically engaged person, and the formation of students as future leaders.

Educational Objectives

Students who complete the LAC program will

1. Gain cultural breadth.
2. Value ethical responsibility.
3. Develop analytical/critical thinking and quantitative competence.
4. Communicate effectively.

LEARNING OUTCOMES

Students will be able to:

1. Recognize and value social and cultural diversity.
2. Exhibit an appreciation for the arts.
3. Demonstrate an appreciation of wellness and health.
4. Discern and make ethically based choices.
5. Demonstrate critical thinking.
6. Apply analytical reasoning.
7. Demonstrate aptitude in written communication.
8. Demonstrate aptitude in oral communication.

The Liberal Arts Curriculum consists of 13 credits of required courses and 21 credits of elective courses for a total of 34 credits.

REQUIRED COURSES (13 CREDITS)

Six credits of English:

<table>
<thead>
<tr>
<th>Course</th>
<th>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</td>
<td>3</td>
</tr>
</tbody>
</table>
Liberal arts curriculum

Three credits of Arabic Language or Literature:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARA201</td>
<td>Appreciation of Arabic Literature</td>
<td>3</td>
</tr>
<tr>
<td>ARA301</td>
<td>Advanced Arabic Grammar</td>
<td>3</td>
</tr>
<tr>
<td>ARA302</td>
<td>Arabic Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>ARA321</td>
<td>Creative Writing</td>
<td>3</td>
</tr>
<tr>
<td>ARA322</td>
<td>Principles of Translation</td>
<td>3</td>
</tr>
<tr>
<td>ARA332</td>
<td>Ancient Arabic Literature</td>
<td>3</td>
</tr>
<tr>
<td>ARA333</td>
<td>New Trends in Modern Arabic Literature</td>
<td>3</td>
</tr>
<tr>
<td>ARA341</td>
<td>Modern Arabic Novel and Short Story</td>
<td>3</td>
</tr>
<tr>
<td>ARA342</td>
<td>Arabic Drama</td>
<td>3</td>
</tr>
</tbody>
</table>

One credit of Computer Applications:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC201</td>
<td>Computer Applications</td>
<td>1</td>
</tr>
</tbody>
</table>

One credit of Ethics:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETH201</td>
<td>Moral Reasoning</td>
<td>1</td>
</tr>
</tbody>
</table>

One credit of Ethics:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>HLT201</td>
<td>Basic Health</td>
<td>1</td>
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</tbody>
</table>

One credit of Physical Education:

<table>
<thead>
<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>PED211</td>
<td>Beginning Swimming</td>
<td>1</td>
</tr>
<tr>
<td>PED218</td>
<td>Table Tennis</td>
<td>1</td>
</tr>
<tr>
<td>PED220</td>
<td>Beginning Tennis</td>
<td>1</td>
</tr>
<tr>
<td>PED231</td>
<td>Modern Dance</td>
<td>1</td>
</tr>
<tr>
<td>PED232</td>
<td>Folk Dance</td>
<td>1</td>
</tr>
<tr>
<td>PED251</td>
<td>BasketBall</td>
<td>1</td>
</tr>
<tr>
<td>PED261</td>
<td>VolleyBall</td>
<td>1</td>
</tr>
<tr>
<td>PED271</td>
<td>Tae-Kwan-Do</td>
<td>1</td>
</tr>
<tr>
<td>PED291</td>
<td>Physical Fitness</td>
<td>1</td>
</tr>
</tbody>
</table>

Notes:
1. a. Entering Freshman students with scores between 500 and 549 on the English Entrance 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.

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.

c. Entering Freshman students with scores between 600 and 649 on the EEE, or its equivalent on the TOEFL, 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 ENG202 Sophomore Rhetoric, and ENG203 Fundamentals of Oral Communication. These scores are under revision and are subject to change without prior notice.

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. These scores are under revision and are subject to change without prior notice.

2. Sophomore students who are exempted from Arabic by the Admissions Council, must substitute the Arabic course by one of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SAR221</td>
<td>Developmental Arabic</td>
<td></td>
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<tr>
<td>SOC321</td>
<td>Sociology of the Arab World</td>
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</tr>
<tr>
<td>WOS313</td>
<td>Women in the Arab World</td>
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ELECTIVE COURSES (21 CREDITS)

CULTURAL STUDIES, HISTORY, PHILOSOPHY, RELIGION

A minimum of three and a maximum of nine credits of Cultural Studies, History, Philosophy, or Religion:

**Cultural studies**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<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>CST203</td>
<td>Cultural Studies III</td>
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**History**

<table>
<thead>
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<tr>
<td>HST221</td>
<td>The Ancient World, Greece and Rome</td>
<td>3</td>
</tr>
<tr>
<td>HST231</td>
<td>History of Lebanon, from the Imarah to the 1975-1990 War</td>
<td>3</td>
</tr>
<tr>
<td>HST240</td>
<td>History of Arab Peoples</td>
<td>3</td>
</tr>
<tr>
<td>HST242</td>
<td>Europe and the Middle East (1798-1956)</td>
<td>3</td>
</tr>
<tr>
<td>HST302</td>
<td>Medieval Europe (1066-1453)</td>
<td>3</td>
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<tr>
<td>HST303</td>
<td>Early Modern Europe (1450-1750)</td>
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**Philosophy**

<table>
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<td>PHL204</td>
<td>Modern Philosophy</td>
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<td>PHL301</td>
<td>Ethics</td>
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</tr>
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<td>PHL302</td>
<td>Theory of Knowledge</td>
<td>3</td>
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<td>PHL303</td>
<td>Metaphysics</td>
<td>3</td>
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<td>PHL311</td>
<td>Philosophy of Religion</td>
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</tr>
<tr>
<td>PHL324</td>
<td>Philosophy of Science</td>
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**Religion**

<table>
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<td>REL312</td>
<td>Interpretation of Religious Literature</td>
<td>3</td>
</tr>
<tr>
<td>REL411</td>
<td>Myth and Ritual</td>
<td>3</td>
</tr>
<tr>
<td>REL412</td>
<td>History of Religious Thought in the Middle East</td>
<td>3</td>
</tr>
<tr>
<td>REL413</td>
<td>Representatives of Christian Thought in the Modern Period</td>
<td>3</td>
</tr>
<tr>
<td>REL414</td>
<td>Representatives of Islamic Thought in the Modern Period</td>
<td>3</td>
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## Liberal arts curriculum

### Literature

A minimum of three and a maximum of six credits of Literature, taught in the English language

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ENG211</td>
<td>Literature I</td>
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<td>ENG212</td>
<td>Literature II</td>
</tr>
<tr>
<td>ENG323</td>
<td>Renaissance Drama</td>
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<tr>
<td>ENG324</td>
<td>Medieval Literature</td>
</tr>
<tr>
<td>ENG325</td>
<td>Renaissance Poetry</td>
</tr>
<tr>
<td>ENG326</td>
<td>Restoration and Neoclassical Literature</td>
</tr>
<tr>
<td>ENG328</td>
<td>Early Novel</td>
</tr>
<tr>
<td>ENG336</td>
<td>Romantic and Victorian Poetry</td>
</tr>
<tr>
<td>ENG339</td>
<td>19th-Century British Novel</td>
</tr>
<tr>
<td>ENG342</td>
<td>Modernism and Beyond</td>
</tr>
<tr>
<td>ENG345</td>
<td>The 20th-Century British Novel</td>
</tr>
<tr>
<td>ENG346</td>
<td>Contemporary Culture</td>
</tr>
<tr>
<td>ENG348</td>
<td>Postcolonial Anglophone Literatures</td>
</tr>
<tr>
<td>ENG351</td>
<td>Early American Literature</td>
</tr>
<tr>
<td>ENG352</td>
<td>20th-Century American Novel</td>
</tr>
<tr>
<td>ENG354</td>
<td>Theories of Literature and Culture</td>
</tr>
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<td>ENG372</td>
<td>Comparative and World Literatures</td>
</tr>
<tr>
<td>ENG479</td>
<td>Topics in Literature and Culture</td>
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### Social Sciences

A minimum of three and a maximum of nine credits of Social Sciences

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<th>Course Code</th>
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<tr>
<td>ECO201</td>
<td>Microeconomics</td>
</tr>
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<td>ECO202</td>
<td>Macroeconomics</td>
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<tr>
<td>PJE201</td>
<td>Cross-cultural Communication for Peace</td>
</tr>
<tr>
<td>POL201</td>
<td>Introduction to Political Science</td>
</tr>
<tr>
<td>POL231</td>
<td>Introduction to Human Rights</td>
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<tr>
<td>PSY201</td>
<td>Introduction to Psychology</td>
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<tr>
<td>PSY202</td>
<td>Child Psychology</td>
</tr>
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<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>
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</tbody>
</table>

### Sciences

A minimum of three and a maximum of nine credits of Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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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>CSC241</td>
<td>Introduction to Computing</td>
</tr>
<tr>
<td>ENV200</td>
<td>Introduction to Environmental Science</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 I</td>
</tr>
<tr>
<td>NUT201</td>
<td>Fundamentals of Human Nutrition</td>
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</tbody>
</table>

### Arts

A minimum of three and a maximum of six credits of Arts

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ARC/DES371</td>
<td>History of Architecture I</td>
</tr>
<tr>
<td>ARC/DES372</td>
<td>History of Architecture II</td>
</tr>
<tr>
<td>ARC/DES376</td>
<td>Introduction to Islamic Art</td>
</tr>
<tr>
<td>ARC/DES377</td>
<td>Introduction to Islamic Architecture</td>
</tr>
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<td>ART331</td>
<td>History of Art I</td>
</tr>
<tr>
<td>ART332</td>
<td>History of Art II</td>
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<td>ART335</td>
<td>Islamic Art of the Middle East</td>
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<td>ART431</td>
<td>Modern Art</td>
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<td>COM210</td>
<td>Communication Media and Society</td>
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<td>COM225</td>
<td>The Art of Film</td>
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<tr>
<td>COM242</td>
<td>Introduction to the Art of Theater</td>
</tr>
<tr>
<td>COM249</td>
<td>Theater in Lebanon and the Arab World</td>
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<tr>
<td>COM345</td>
<td>Modern Drama</td>
</tr>
<tr>
<td>MUS311</td>
<td>Survey of Western Music</td>
</tr>
<tr>
<td>MUS312</td>
<td>Survey of Middle Eastern Music</td>
</tr>
</tbody>
</table>

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   SOC321 Sociology of the Arab World
   WOS313 Women in the Arab World
3. HST230 History of Lebanon, from Antelias Man to the Ottoman Conquest
4. HST231 History of Lebanon, from the Imarah to the 1975-1990 War
5. HST240 History of the Arab Peoples
## 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:

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<thead>
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<th>Prefix</th>
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<tbody>
<tr>
<td>ACC</td>
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<tr>
<td>ARA</td>
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<td>Architecture</td>
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<td>ART</td>
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<td>Computer Engineering</td>
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</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 Architecture & Design (SArD)
The School of Architecture and Design

INTRODUCTION
The School of Architecture & Design was officially established in 2009, following the consolidation of existing programs in Fine Arts, Foundation, Architecture, Interior Design, and Graphic Design, under one school. The established programs had a long history at LAU, with the program in Fine Arts dating back to 1957, Interior Design to 1982, Architecture to 1993 and Graphic Design to 1994. In the Fall of 2002, the Foundation program was established as a common platform for all entering design students, upon completion of which they can choose their area of specialization.

SCHOOL MISSION AND VISION
The Mission of the School of Architecture & Design is to educate competent designers and fine artists in the various design fields, who will have the breadth of knowledge and the skills necessary to creatively engage different artistic and design problems, in addition to a broad culture founded on liberal education, that will allow graduates to operate as responsible citizens and ethical professionals in a global world.

The vision of the School of Architecture and Design is driven by its Mission and Values, specifically to:

• Create a School that brings together the various design and fine arts disciplines
• Develop an atmosphere of collegiality, exchange of ideas, experimentation and research
• Provide a forum for emerging talents in the various design and fine arts fields
• Meet the goals of the University in achieving excellence and measuring up to international standards of education and practice in the design and fine arts field

INTERIM DEAN
Elie Badr, Ph.D

ASSISTANT DEAN
Elie G. Haddad, Ph.D

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Rached Bohsali, C.E.A.A
Department of Fine Arts & Foundation Studies

Maroun El-Daccache, Ph.D
Department of Architecture & Interior Design

Randa Abdel Baki, M.F.A
Department of Graphic Design

ASSOCIATE CHAIRS
Farid Jureidini, B. Arch
Department of Fine Arts & Foundation Studies

Tarek Khoury, M.F.A
Department of Graphic Design
SArD faculty 2011-12

BEIRUT CAMPUS

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Rached Bohsali
Chawki Chamoun
Leila Dabaghi
Mona Jabbour
Bassam Lahoud
Hanibal Srouji

Visiting Faculty
Hani Asfour
Behnam Farahpour

Part Time Faculty
Ramona Abdo
Marwa Arsanios
Jihane Azar
Betina Badr
Fatien Coussa
Naim Doumit
Zeina El-Abed
Bachar El-Amine
Bassam Geitani
Ghassan Ghazal
Carlos Ghousoub
Ameen Hamed
Tuline Hamoud
Azza Houssein
Vatche Kalforian
Michel Kairouz
Fady Kallab
Helen Karam
Ali Kays
Dona Kdouh
Toufic Kerbaje
Greta Khoury
Tania Kosaify
Hiba Mikdachi
Zeina Miskawi
Samar Mougharbel
Ramzi Najjar
Youssef Nasser
Tony Nasrallah
Greta Nawfal
Christina Rahme
Khalid Rifai
Reem Rihany
Arwa Seifeddine

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Maroun Daccache
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Joseph Kiprianos
Nada Khoury

Visiting Faculty
Jean-Marc Abcarius
Lizz Azzi

Part Time Faculty
Roland Abou Jaoudeh
David Awad
Vanessa Dammous
Bachar El-Amine
Sandra Frem
Carlos Ghousoub
Georges Hakim
Chantal Hayek
Abdo Jamous
Sophie Khayat
Wissam Noshie
Ayman Wehbe
Ghida Zein

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Yasmine Taan

Visiting Faculty
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Pascal Glissmann

Part Time Faculty
Jihane Azar
Raffi Boyadjian
Karim Dahrdeh
Moses Emoghlian
Azza Hussein
Hatem Imam
Rena Karanouh
Ali Kays
Georges Khoury
Greta Khoury
Hiba Mikdashi
Ghida Younes
The School of Architecture and Design

BYBLOS CAMPUS

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Ruth Maalouf
Hanibal Srouji

Visiting Faculty
Behnam Farahpour
Mariella Jaeger

Part Time Faculty
Ramona Abdo
Nabil Basbous
Bachar El-Amine
Ghassan Ghazal
Azza Houssein
Ortanse Jabr
Mohamad Kabbara
Fadi Mattar
Gulnar Nader
Naji Sfeir

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Rachid Chamoun
Maroun Daccache
Elie Harfouche
Elie Haddad
Farid Jreidini
Joseph Kiprianos
Tony Lahoud
Antoine Romanos

Visiting Faculty
Asterios Aghathedis

Part Time Faculty
Antoine Abboud
Joseph Assaad
Issam Barhouche
Habib Bou Habib
Bachar El-Amine
Abdo Jamous
Mohamad Kabbara
Jihad Khairallah
Wissam Khairallah
Cindy Menassa
Joelle Merchak
Tony Nasrallah
Nabil Semaan

DEPARTMENT OF GRAPHIC DESIGN

Full Time Faculty
Tarek Khoury
Ruth Maalouf
Melissa Plourde

Visiting Faculty
Mariella Jaeger

Part Time Faculty
Moses Emogholian
Nayla Gedeon
Ortanse Jabre
Wissam Melki

SArD staff 2011-12

BEIRUT CAMPUS

Academic Assistants
Yara Mikhael
Mary Therese Kassab
Rola Rizk

Architecture Lab Supervisor
Jalal Kahwaji

Academic Computer Center Senior Administrator
Lina Abdoun

Graphic Designer
Charbel Harb

BYBLOS CAMPUS

Academic Assistant
Nagham Naim

Shop Technician
Shaker Azzi

Architecture Lab Supervisor
Jad Njeim

Academic Computer Center Administrator
Elie Derian

Graphic Designer
Charbel Harb
The School of Architecture and Design

BEIRUT FACILITIES

ARCHITECTURE COMPUTER LAB
This lab is dedicated to architecture, interior architecture, and interior design applications. It is used for computer lab courses as well as a support facility for design studios.

ARCHITECTURE LASER LAB
The laser lab is equipped for the digital production of models for architecture and design applications. It has a state of the art laser-cutting machine, which allows students to build their design models in-house.

GRAPHIC DESIGN COMPUTER LABS
There are three Graphic Design computer labs dedicated to all graphic design digital production services. The labs are equipped with state of the art computers, digital cameras, scanners, plotters, and other equipment. The labs are open to graphic design students, and for the support of all graphic design studios, in addition to design workshops held during the semester. One of the labs is dedicated to all digital graphic design studio courses.

PHOTOGRAPHY STUDIO
This studio is open to all students taking photography courses. It allows students to develop films and prints in the dark room. It is equipped for studio photography, with a professional digital camera, as well as small, medium & large format analogue cameras, and full digital studio equipment.

SILKSCREEN STUDIO
This studio is open to students enrolled in the silkscreen studio. It is used for silkscreen and binding projects, and fully equipped with screen printing machines, frames, water guns, light room and printing material.

CERAMICS WORKSHOP
This workshop is equipped with all the tools needed for the production of ceramic artworks, such as slab rollers, coil extruder, wheels and kilns. It is open to students taking the ceramics courses.

WOOD & METAL WORKSHOP
This workshop is equipped with metal and wood machinery used for the production of three-dimensional, hand-made design models. It allows students to produce their own study and final models for architecture and design studios.

BYBLOS FACILITIES

ARCHITECTURE COMPUTER LAB
This lab is dedicated to architecture, interior architecture, and interior design applications. It is used for computer lab courses as well as a support facility for design studios.

ARCHITECTURE LASER LAB
The laser lab is equipped for the digital production of models for architecture and design applications. It has a state of the art laser-cutting machine, which allows students to build their design models in-house, in addition to a new 3D printing machine.

GRAPHIC DESIGN COMPUTER LAB
The Graphic Design computer lab is dedicated to all graphic design digital production services. The lab is equipped with state of the art computers, digital cameras, scanners, plotters, and other equipment. It is open to graphic design students, and used for the support of all graphic design studios.

PHOTOGRAPHY STUDIO
This studio is open to all students taking photography courses. It allows students to develop films and prints in the dark room. It is equipped for studio photography, with a professional digital camera, as well as small, medium & large format analogue cameras, and full digital studio equipment.

CERAMICS WORKSHOP
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WOOD & METAL WORKSHOP
This workshop is equipped with metal and wood machinery used for the production of three-dimensional, hand-made design models. It allows students to produce their own study and final models for architecture and design studios.
SArD institutes

INSTITUTE OF ISLAMIC ART & ARCHITECTURE (IIAA)
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. Its 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.

URBAN PLANNING INSTITUTE (UPI)
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.
Foundation studies program for design majors

The Foundation Studies Program aims at creating an open multidisciplinary platform that serves all design disciplines and enriches the student’s design culture through a number of design modules that cover visual perception and plastic modeling, in addition to technical support courses, art electives and liberal arts requirements.

MISSION
The mission of the Foundation Studies Program is to offer students in the design fields a comprehensive educational platform based on the principles of liberal education, fostering the development of creativity through an initiation into critical thinking, aesthetic judgment, and technical knowledge.

EDUCATIONAL OBJECTIVES
The purpose of the Foundation Studies Program is to offers a comprehensive introduction to design, providing students with a broad outlook into design as a creative activity neither limited nor separated by disciplinary boundaries.

LEARNING OUTCOMES
At the end of the Foundation Studies Program year students will acquire the following skills:

i. Ability to conceptualize and to analyze
ii. Development of visual representational and interpretational skills
iii. Development of critical aptitude
iv. Mastery of shop skills [metal and wood]
v. Initiation into computer graphics
vi. Introduction of cultural and aesthetic dimensions of design

Note: This Program is common to all Design Majors [Architecture, Interior Design, Interior Architecture and Graphic Design], to be completed in the First Year of enrollment.

FOUNDATION CURRICULUM (36 CREDITS)

Fall Semester (13 credits)

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<td>Design Studio I-B</td>
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Spring Semester (15 credits)

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<td>PHO 211</td>
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* Art Electives:
- ART 211 Ceramics I 3
- ART 222 Drawing II 3
- ART 334 Graphics 3
- ART 341 Painting I 3
- ART 351 Sculpture I 3
- PHO 212 Photography II 3

**LAC Electives
Refer to the list of University approved Liberal Arts Curriculum Electives
COURSE DESCRIPTIONS

ARC/DES/GRA 231 Design Studio I-A
[2-2, 3 cr.]
This studio emphasizes on visual perception through an initiation into the different modes of representation and formal analysis of the elements of visual language, such as line, volume, texture, colour, and 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 student’s perception of forms and to train the eye and the hand in the process of interpretation and representation of forms.

Prerequisites: Passing grade [C] in Design Studio I-B

ARC/DES/GRA 232 Design Studio I-B
[2-2, 3 cr.]
This studio emphasizes the study of structural characteristics as foundational to an understanding of morphology/the manifestation of different forms, natural or artificial. Students analyze scale, proportion, structural constraints and orientations required of gravity for three-dimensional forms. A variety of concepts and processes will be explored with considerable emphasis placed on learning by making, stressing different techniques of plastic modeling from cardboard to foam and wood, and requiring an active use of the workshop. A shop orientation session is required to introduce students to the basic tools and safety procedures for using the wood and metal shop.

ARC/DES/GRA 233 Design Studio II-A
[2-2, 3 cr.]
This studio will continue the development of visual perception in the two-dimensional field elaborating projects that investigate the relation of form to content through two-dimensional representation. The studio will explore different image-making techniques emphasizing composition, layout and presentation as a means of conceptual expression and communication in design. Critical thinking, analysis as well as verbal and visual presentation are further developed through process studies and research.

Prerequisites: Passing grade [C] in Design Studio I-A
Co-requisite: Intro to Computer Graphics

ARC/DES/GRA 234 Design Studio II-B
[2-2, 3 cr.]
This studio further explores issues of visual perception and form-making through more elaborate three-dimensional studies. Exercises in this module involve formal and structural analysis, dissection, assembly, re-configuration. Projects in this studio would emphasize plastic modeling in various materials [wood, metals, plastics] while developing the students analytical, artistic and interpretive faculties and stressing the importance of process as a necessary mode in the refinement and elaboration of design projects.

ARC/DES/GRA 240 Sketching [1-2, 2 cr.]
This general course on sketching stresses freehand drawing techniques with pencil, charcoal, as well as the basics of watercolor rendering.

ARC/DES/GRA 241 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 shade and shadows. This studio will also introduce students to the various tools and techniques of technical drawing in pencil and ink.

ARC/DES/GRA 251 Introduction to Computer Graphics [2-2, 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].

ARC/DES/GRA 261 Design Culture [2-0, 2 cr.]
This course is an introduction to the wide discipline of design, and the inter-relations between design and art, photography, film music, etc. It is a creative presentation of the multiple dimensions of the design field, through a series of lectures, film screenings, art documentaries and other events that initiate the student to the design world.

ARC/DES/GRA 271 History of Design [2-0, 2 cr.]
This course surveys design activity from the nineteenth century development of the Arts & Crafts movement and the subsequent development 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 explores the various manifestations of these artistic developments in the applied arts from spatial design to furniture to various product designs and their relationship to the aesthetic idea behind these movements.
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 exhibit and marketing their own work. They will have a strong portfolio and at the end of the year, a state-of-the-art exhibition catalogue mainly featuring the works of senior students.

2. An art teacher in elementary and secondary school, with a strong educational background and 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 both their 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 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, theatre, or the management of art enterprises.

Students need 92 credits to graduate, which can be normally completed in 3 years (34 credits Liberal Arts Curriculum, 42 credits for the major, 9 credits for art electives).
**B.A. IN FINE ARTS**

**Year I - 31 credits**

**Fall**
- ART221 Drawing I [0-6, 3 cr.]
- ART201 Fundamentals of Design I [0-6, 3 cr.]
- ART223 Perspective Drawing [0-6, 1 cr.]
- LAC Electives* [0-6, 6 cr.]
- Art Elective [0-6, 3 cr.]

**Spring**
- ART222 Drawing II [0-6, 3 cr.]
- ART202 Fundamentals of Design II [0-6, 3 cr.]
- LAC Electives* [0-6, 6 cr.]
- Art Elective [0-6, 3 cr.]

**Year II - 32 credits**

**Fall**
- ART341 Painting I [0-6, 3 cr.]
- ART351 Sculpture I [0-6, 3 cr.]
- ART211 Ceramics I [0-6, 3 cr.]
- ART331 History of Art I [0-6, 3 cr.]
- LAC Electives* [0-6, 5 cr.]

**Spring**
- ART342 Painting II [0-6, 3 cr.]
- ART352 Sculpture II [0-6, 3 cr.]
- ART212 Ceramics II [0-6, 3 cr.]
- ART332 History of Art II [0-6, 3 cr.]
- LAC Electives* [0-6, 5 cr.]

**Year III - 28 credits**

**Fall**
- ART441 Painting III [0-6, 3 cr.]
- ART335 Islamic Art of Middle East [0-6, 3 cr.]
- LAC Electives [0-6, 6 cr.]

**Spring**
- ART442 Painting IV [0-6, 3 cr.]
- ART499 Senior Study [0-6, 3 cr.]
- LAC Electives* [0-6, 6 cr.]
- Art Elective [0-6, 3 cr.]

*LAC Electives
Refer to the list of University approved Liberal Arts Curriculum Electives

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**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 interrelationship 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 [0-6, 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 [0-6, 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.
Prerequisite: 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.
Co-requisite: 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.
Prerequisite: 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.
Prerequisites: 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.
Prerequisite: ART341 Painting I, or the consent of the Instructor.

ART351 Sculpture I [0-6, 3 cr.]
This is a course facilitating the realization of three dimensional forms by modelling, carving, and casting, meaningful subjects.

ART352 Sculpture II [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.
Prerequisite: 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.

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.
Prerequisite: PHO211 Photography I.

PHOTOGRAPHY STUDIOS
The open plans of our both photography studios in Beirut and in Byblos offer students a complete setting for opportunities to shoot still image photography, process and develop black & white or colour images using traditional and digital processes. Each studio is combined with a darkroom setting and a digital photofinishing lab area, where students will have their individual work space. The studio is well equipped with lights, backgrounds, digital cameras, developers, printing facilities, and computers. The space is large enough to contain a small class for hand on teaching.

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.
Prerequisite: PHO211 Photography I.
Department of Architecture and Interior Design

UNDERGRADUATE PROGRAM

• Bachelor of Arts (B.A.) in Interior Architecture.
• Bachelor of Science (B.S.) in Interior Design
• Bachelor of Architecture (B.Arch.)

MINORS IN

• Digital Media
• Islamic Art & Architecture

BACHELOR OF SCIENCE IN INTERIOR DESIGN

The Bachelor of Science in Interior Design program offers students a general exposure to the practice of Interior Design, teaching them how to develop the necessary base for practice in the field. Building upon the common foundation year, students are introduced in the second and third years, to various design problems of gradually increasing complexity.

This program may be completed in a minimum of three years, with two Summer Term modules, with a total of 110 credits after the Freshman year.

Students who are interested in following a more comprehensive program for practice as an interior designer and/or an interior architect, may continue their studies by adding one additional year and thus completing the Bachelor of Arts in Interior Architecture. Refer to the section on Bachelor of Arts in Interior Architecture.

MISSION

The mission of the Interior Design program is to provide students with a comprehensive education based on a humanistic approach to the discipline. This program prepares students to pursue a career in interior design upon graduation or to pursue graduate studies in interior design or other related fields.

EDUCATIONAL OBJECTIVES

The purpose of the Bachelor of Science in Interior Design is to:

i. Offer students who successfully complete their studies with the Degree of Bachelor of Science in Interior Design.


iii. 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 built environment.

iv. Expose students to the current issues in theory and practice, as well as the latest technology in the field.

LEARNING OUTCOMES

Graduates of the Bachelor of Science in Interior Design program will acquire the following skills:

i. The ability to practice interior design in various contexts and cultures.

ii. Refined critical thinking and problem-solving skills.

iii. The ability to identify design issues and to provide solutions.

iv. The ability to design and execute projects related to interior design, renovation, restoration and other projects.

v. 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.

vi. The capacity to deal innovatively with projects of different types and scales.

vii. The capacity to elaborate projects with innovative structural systems, detailing, and material.

viii. Flexibility to operate in a multi-disciplinary environment.

ix. The ability to serve the community in organizations in both the public and private sectors.

B.S IN INTERIOR DESIGN CURRICULUM

Year I - 36 credits
See Foundation Program

Year II

Fall Semester (16 credits)

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<td>Technical Graphics II</td>
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<td>DES371</td>
<td>History of Architecture I</td>
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Summer Modules I and II (10 credits)

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Year III

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*Bachelor of Arts in Interior Architecture*

The Bachelor of Arts in Interior Architecture Program includes the basic foundation of the Bachelor of Science in Interior Design Program, but also features an additional year of specialization that allows students a more comprehensive exposure to the interior design profession. This program also 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 program also have the option of adding to their studies by focusing their professional electives in one of two areas of specialization – Islamic Art and Architecture, or Graphic Design.

A total number of 139 credits are required for the Bachelor of Arts in Interior Architecture program, excluding the Freshman year. For the Bachelor of Arts in Interior Architecture program with a minor in Islamic Art and Architecture, a total number of 147 credits is required; whereas to minor in Graphic Design, a total number of 151 credits is required.

This program may be completed in four academic years after the Freshman year, including Summer term modules. Students may elect to extend the program over a longer period of time if they choose not to take any Summer term modules.

Students enrolled in the Bachelor of Science in Interior Design may apply to this program and typically 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 a 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:

i. Offer students who successfully complete the program with the degree of Bachelor of Science in Interior Architecture.
ii. Provide a platform for graduate specializations in furniture design, product design, interior design, industrial design, fashion design and other fields in design.

iii. Develop a broad base of theoretical knowledge and the necessary practical skills.

iv. Assert the role of the interior architect as a synthesizer of the different factors which affect the built environment.

v. 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:

i. The ability to practice interior architecture in various contexts and cultures.

ii. The capacity for critical thinking, and the ability for problem solving.

iii. The ability to identify design issues, to conduct research, and to provide solutions.

iv. The ability to design, and execute, projects relating to interior architecture, renovation, restoration and other related projects.

v. 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.

vi. The capacity to deal innovatively with projects of different types and scales.

vii. The capacity to elaborate projects with innovative structural systems, detailing, and material.

viii. The ability to engage in critical thinking and problem solving.

ix. The capacity to operate in a multi-disciplinary environment.

x. The capacity to serve the community in organizations of both public and private sectors.

**B.A. IN INTERIOR ARCHITECTURE CURRICULUM**

**Year I - 36 credits**

*See Foundation Program*

**Year II**

*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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**Year III**

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**Summer Modules I and II (10 credits)**

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### COURSE DESCRIPTIONS

#### DES331 Design Studio III [3-6, 6 cr.]

This course builds upon 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 places an emphasis upon the development of representational tools in translating ideas into architectural drawings and models, specifically on the importance of drawing as a design tool.

Prerequisites: DES231 Design Studio I-A, DES232 Design Studio I-B, DES233 Design Studio II-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. Small to medium-scale projects are studied, 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 – encompassing plans, sections, and 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, and sections and elevations, with two-dimensional and three-dimensional representations, as well as 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, including plans, sections and elevations at appropriate scales.

Prerequisite: DES341 Technical Graphics II.

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### Department of Architecture and Interior Design

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*LAC Electives

Refer to the list of University approved Liberal Arts Curriculum Electives
Christopher A. Pfister, Head of Department

Department of Architecture and Interior Design

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, and 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. Important icons and landmarks in art and architecture, as well as the principles, technical developments and ideologies underlying these various movements will be analyzed. The course will also study the importance of cultural ideas and ideals and their relation to the development of aesthetic forms, and more broadly, of civilization.

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, by 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.

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: DES332 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, and 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 and 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 interior design applications of small-to-medium scale in greater detail. By 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 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.

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 artefacts are examined in terms of their purpose and meaning, and are interpreted in the context of cultural history.

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, are explored within their religious, political and socio-economic contexts, as well as in terms of meaning, function, aesthetics and emerging forms. Particular emphasis is given to the regional design vocabulary and the evolution of style, content and iconography. The course also investigates 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 and 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, and modern and contemporary furniture design. The survey also covers the different technologies and transformation in design processes.

DES523 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 such as solar energy and heating, insulated walls, and alternative materials.
DES524 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.

DES531 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.

DES532 Design Studio VIII [3-4, 5 cr.]
Synthesizing 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 simultaneously addresses the various theoretical and technical aspects of the design within the parameters set for the final project.

Prerequisite: DES531 Design Studio VII.

DES583 Internship [0-1, 1 cr.]
This course is an introduction to the professional practice, with introductory lectures that outline the basics of job search, applications, and practical training, to be followed by a documented practical experience (200 work hours) in a professional firm, approved by the department.

DES585 Professional Practice [2-0, 2 cr.]
This course introduces 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.

DES591 International Studio [1-4, 3 cr.]
This course is a study abroad of the specific interior design and architectural works, supported by a preparatory series of lectures/presentations on the subject of study. Students would be required to analyze and document specific works and study their relationship the urban history and culture of the area, to be documented and presented in a portfolio.

Prerequisite: DES432 Design Studio VI.

DES592 International Workshop [1-2, 3 cr.]
This course is a workshop abroad at a host school, revolving around specific and intensive interior design projects.

Prerequisite: DES432 Design Studio VI.
The curriculum leads to the professional degree of Bachelor of architecture, enabling graduates to practice architecture in its wide range of applications, or to pursue graduate studies in a range of fields including 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 a humanistic approach to the discipline, preparing them to pursue a professional career or graduate studies.

EDUCATIONAL OBJECTIVES
The purpose of the Bachelor of Architecture is to:

i. Offer students, who successfully complete their studies, the professional degree of Bachelor of Architecture.

ii. Provide a platform for graduate specializations in architecture, urban planning, urban design, landscape design, digital design, and other fields in design.

iii. Develop a broad base of theoretical knowledge and the necessary practical skills.

iv. Assert the role of an architect as a synthesizer of the different factors which affect the built environment.

v. 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:

i. The ability to practice architecture in various contexts and cultures.

ii. A capacity for critical thinking and problem solving skills.

iii. The ability to identify design issues, conduct research, and to provide solutions.

iv. An understanding of the urban dimension of architecture and the consequences of building activities on the environment.

v. The capacity to deal innovatively with projects of different types and scales.

vi. The capacity to elaborate projects with innovative structural systems, detailing and material.

vii. The capacity to operate in a multi-disciplinary environment.

viii. The capacity to serve the community in organizations of both public and private sectors.

B.Arch. Curriculum
Year I - 36 credits
See Foundation Program

Year II
Fall Semester (16 credits)

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<tr>
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Spring Semester (15 credits)

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Summer Modules I and II (11 credits)

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Year III
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# Department of Architecture and Interior Design

## Spring Semester (15 credits)

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</table>

*LAC Electives

Refer to the list of University approved Liberal Arts Curriculum Electives
MINOR IN DIGITAL MEDIA

The Minor in Digital Media 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 Digital Media 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 (11 credits)

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Two Electives (6 credits) to be selected from the following courses:

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One Elective (3 credits) to be selected from the following courses:

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<td>GRA487</td>
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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.

MISSION

The Minor in Islamic Art and Architecture exposes students of Architecture and Design to the artistic and architectural heritage of the Islamic world, thus filling a gap in the current educational programs of architects and designers working in the Arab world. As well, the minor offers a number of electives to non-major students who may wish to broaden their knowledge of this important aspect of the culture of the region.

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.

LEARNING OUTCOMES

Graduates of the minor in Islamic Arts and Architecture program will acquire the following skills:

i. An understanding of the role and breadth of the arts in the various Islamic cultures.

ii. Basic knowledge of the historic development of Islamic Art and Architecture in the Islamic world, and the major highlights of these developments.

iii. Development of basic analytical and interpretative skills in examining the Islamic Art traditions, and in formulating contemporary interpretations of these rich traditions.
Department of Architecture and Interior Design

Required Courses (14 credits)

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<tr>
<td>ARC478</td>
<td>The Decorative Arts of Islam</td>
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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. In addition to the models, the elaboration of a complete set of architectural drawings for the final design, encompassing plans, sections, and elevations in addition to the models will also be expected at this stage.

Prerequisite: ARC331 Design Studio III.

ARC341 Technical Graphics II [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 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 (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 is an in depth examination of the ideologies behind modern and post-modern culture and the influence of contemporary theories on the architectural and design cultures, with a thematic approach that deals with the specific aspects of contemporary practice.

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.

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 madrassah, or the restoration of a historic structure in the Islamic world.
Prerequisite: ARC332 Design Studio IV.

ARC411 Building Systems III [3-0, 3 cr.]
This course is an introduction to the different soil-structural systems, and the multiplicity of ways that 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. Comparisons 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 and Interior 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 – IAAD [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 and libraries, 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.]
An introduction to 3D digital modeling through generation, manipulation and total control of complex geometrical and free form objects as related to design issues and applications, enabling students to explore new tools for design.

Prerequisite: ARC352 Computer Graphics II.

ARC452 Computer Animation [2-2, 3 cr.]
An advanced visualization of space to user-defined lighting and materials, in order to generate realistic 3D rendered walk-through, parts in motion and animation techniques.

Prerequisite: ARC352 Computer Graphics II.

ARC454 Dynamic 3D Modeling [2-2, 3 cr.]
An introduction to building information modeling with the understanding of real time modeling including spatial relationship and properties of building components.

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.

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 examine 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. The course will also employ a range of methodologies and 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 artefacts 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 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.

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.
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 such as 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 [2-4, 4 cr.]
A design studio oriented towards investigating and conceptualizing design problems through computer-aided tools from their initial stages to the design development, by means of new digital methodologies.
Prerequisite: Any two of the following courses: ARC451 Digital Modeling, ARC452 Computer Animation, ARC 454 Dynamic 3D Modeling

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.]
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, and 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, the 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 study, analyze and document specific works including their relationship to the urban history and culture of the area, which will be presented in a portfolio.

Prerequisite: ARC432 Design Studio VI.

ARC595 International Studio [1-4, 3 cr.]  
This studio offers an opportunity for the students to gain a first-hand experience of the wealth and breadth of the material heritage of the Arab and Islamic worlds. The knowledge gained through the design history and theory courses will be complemented by field trips and site visits that offer direct exposure to and 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 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 is a research course 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. This must simultaneously address the various factors in the design process, and lead 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 Graphic Design

UNDERGRADUATE PROGRAM
• Bachelor of Science (B.S.) in Graphic Design

MINORS IN
• Advertising

BACHELOR OF SCIENCE (B.S.) IN GRAPHIC DESIGN

MISSION
The Mission of the Graphic Design Department is to educate competent designers with proficient skills, an appreciation of arts and a broad cultural knowledge that would allow them to become effective design leaders, good visual communicators and critical thinkers in the design field.

EDUCATIONAL OBJECTIVES
1. The profession of Graphic Design is one that is in constant flux. Our aim 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 the student’s 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, students have the choice between print emphasis and digital emphasis. The concentration of each emphasis is conveyed in the final senior project - a challenging, self-defined experience that will help students identify their professional interests. Creating visual systems and information design as integral in the final project. Students are required to complete an internship class that allows them to work for credits in a design studio of their choice depending on their specific area of interest.

A multi-faceted discipline, graphic design offers wide opportunities in working for advertising agencies, design studios, publishing houses,
Department of Graphic Design

television production houses, or as freelancers designing websites, typefaces, animated sequences, interface systems, packaging, identities, posters and exhibitions.

The program curriculum consists of 118 credits.

B.S. IN GRAPHIC DESIGN CURRICULUM

Year I - 36 credits
See Foundation Program

Year II - 37 credits

Fall Semester (13 credits)

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<tr>
<td>GRA 212</td>
<td>Introduction to Typography</td>
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<tr>
<td>ART 222</td>
<td>Drawing II</td>
<td>3</td>
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<tr>
<td>GRA 301</td>
<td>Intermed. Computer Graphics</td>
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<td>GRA</td>
<td>Graphic Design Elective*</td>
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<tr>
<td>HLT 201/ ETH 201</td>
<td>Basic Health or moral reasoning</td>
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Spring Semester (15 credits)

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<td>GRA 342</td>
<td>Art of Illustration</td>
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<td>ENG 202</td>
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<td>MKT 201</td>
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Digital Design Emphasis

Year III - 35 credits

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<td>GRA 432</td>
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<td>GRA 484</td>
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<td>GRA 487</td>
<td>3D Animation Techniques</td>
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<td>ART 431/332</td>
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Spring Semester (14 credits)

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<td>GRA 486</td>
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Year IV - 13 credits

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Print Design Emphasis

Year III - 35 credits

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<td>GRA 411</td>
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<td>GRA 455</td>
<td>Advertising Design</td>
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* Graphic Design electives:

Print Design Emphasis

Digital Design Emphasis

Year IV - 13 credits

Fall Semester (13 credits)

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* **LAC Electives

Refer to the list of University approved Liberal Arts Curriculum Electives
GRA301 Intermediate Computer Graphics [2-2, 3 cr.] - Lab course
This intermediate level computer graphics lab course teaches applications that are fundamental to the field of graphic design. Emphasis is placed on technical proficiency and creativity through the manipulation of vector graphics, raster graphics, color, text, layout, grid and die-cuts through an advanced understanding of Adobe Illustrator, Adobe Photoshop and Adobe InDesign. The division of the course is based on demonstrations, presentations, exercises, discussions and critiques.
Prerequisites: GRA 251 Introduction to Computer Graphics, GRA 233 Design Studio IIA, GRA 234 Design Studio IIB

GRA302 Advanced Computer Graphics [2-2, 3 cr.]
This advanced level computer graphics lab course teaches various animation techniques and software. Animation development is explored through the manipulation and integration of image, graphics, sound, and typography in motion. The division of the course is based on demonstrations, presentations, projects, discussions and critiques.
Prerequisite: GRA301 Intermediate Computer Graphics

GRA312 Printing Variables [3-0, 3 cr.]
Various printing processes, principles and techniques are integral to print media studies in graphic design. This course is taught through lectures, assignments, and fieldtrips to print industries. Emphasis is place upon the vocabulary of the print industry and hands-on experience through the study of printing specification, quotations and pricing, file preparation and professional printing.
Prerequisite: GRA352 Graphic Design II

GRA341 Art of Calligraphy [2-2, 3 cr.] GRA Elective studio course
This elective studio course teaches the art of beautiful handwriting. Simultaneously, the study, research and history of calligraphy as well as its development into a contemporary art form is explored. Importance is placed on the understanding of proportions to enhance legibility combined with the ability to communicate a feeling. This course is taught through projects, discussions and critiques.
Prerequisites: GRA301 Intermediate Computer Graphics, GRA351 Graphic Design I Co-requisite: GRA431 History of Graphic Design

GRA342 Art of Illustration [2-2, 3cr.] studio course
This studio course teaches drawing skills through the use of diverse media and assigned research on the history of illustration. Emphasis is placed on the development of personal style in illustration through research, projects, discussions and critiques.
Prerequisite: ART222 Drawing II

GRA345 Silkcreen and Binding [2-2, 3cr.] studio course
This elective studio course introduces the students to silkscreen, printmaking and book binding methods. Through hand-drawn separations, photographic film, digital separations and Xeroxed images, a range of silkscreen techniques are implemented. Various book binding techniques including Japanese binding; accordion folds and signature binding are explored. This course is taught through project development, demonstrations, studio sessions, discussions and critiques.

GRA351 Graphic Design I [2-2, 3cr.] studio course
This studio course explores the principles, problem solving methodology and techniques of graphic design. It investigates visual identity systems applied to printed materials that integrate typography, image, graphics, color and composition for logo and promotional materials design. Emphasis placed on the process of graphic design, research, concept development and the production of bilingual designs. This course is taught through projects, discussions and critiques.
Prerequisites: GRA212 Introduction to Typography, GRA301 Intermediate Computer Graphics

GRA352 Graphic Design II [2-2, 3cr.] studio course
This studio course is an in-depth exploration of publication and editorial concept design. Emphasis is placed on grid system development, composition and the integration of color, illustration, photography, and typography for bilingual publications. This course is taught through projects, discussions and critiques.
Prerequisites: GRA301 Intermediate Computer Graphics, GRA351 Graphic Design I Co-requisite: GRA431 History of Graphic Design
Department of Graphic Design

GRA411 Advanced Typography [2-2, 3cr.]
This advance level studio course explores the intricacies of typography. Typeface development and typographic experimentation, typography as an expressive visual form and as a functional vehicle of communication is taught. Emphasis is placed on bilingual typography the structural differences between Arabic and Latin typography. This course is taught through projects, discussions and critiques.
Prerequisites: GRA212 Introduction to Typography, GRA351 Graphic Design I

GRA431 History of Graphic Design [3-0, 3 cr.]
This course serves as a comprehensive survey of the history of graphic design from prehistoric visual communications to the proliferation of digital technology and contemporary design. This course teaches the evolution of graphic design through the impact of technological advancements, critical events and innovations by historical figures in the field of graphic design. Emphasis is placed on the analysis linking historical events to current graphic design debates. The course is taught through presentations, research paper, writing, readings and discussions.
Co-requisite: ENG102 English II

GRA432 Visual Perception [2-2, 3 cr.]
How designers decode visual information and audiences encode them is fundamental to the discipline of graphic design. This course approaches the study of visual culture and its theoretical framework. It investigates the production, form and reception of images as well as introduces theoretical strategies to understand how meaning is produced by and through images within their historical context. This course is taught through presentations, discussions, projects and critiques.
Prerequisites: GRA271 History of Design, ENG 102 English II

GRA451 Graphic Design III [2-2, 3 cr.]
The generation of three-dimensional package design solutions is an integral component within print media. This course examines the multi-faceted problem solving methodology of three-dimensional graphic design. Importance is placed on the development of innovative, economical, sustainable, functional and aesthetic package design. This course is taught through exercises, demonstrations, projects, discussions and critiques.

GRA455 Advertising Design [2-2, 3 cr.]
This advanced level studio course investigates the relationship between creativity and sales. Emphasis is placed on new directions of creative, intelligent, ethical and persuasive skills for the layout of advertisement and copywrite. This course is taught through projects, discussions and critiques.
Prerequisites: GRA352 Graphic Design II, MKT201 Introduction to Marketing

GRA462 Graphic Design Seminar [2-2, 3cr.]
This course serves as an in-depth seminar on subjects of current interest in graphic design and new media. The integration of theories from related disciplines in recent graphic design debates are introduced and critical thinking is encouraged. Emphasis is place on methodological research and the role of the graphic designer. This course is taught through presentations, exercises, research paper, writing, readings and discussions.
Prerequisites: GRA432 Visual Perception, ENG102 English II, GRA431 History of Graphic Design, GRA352 Graphic Design II

GRA482 Motion Design [2-2, 3 cr.]
This advanced level studio course explores the conceptualization, methodological procedures and applications of design in motion. Emphasis is placed on time-based media combining typography, image, sound and video. This course is taught through projects, discussions and critiques.
Prerequisite: GRA302 Advanced Computer Graphics, GRA484 Web Design

GRA484 Web Design [2-2, 3 cr.]
Web design is integral to digital media studies in graphic design. This course introduces web design development and serves as an extensive exploration of website navigation and interactivity. This course is taught through projects, discussions and critiques.
Prerequisite: GRA302 Advanced Computer Graphics

GRA486 Advanced Interactive Design [2-2, 3 cr.]
This advanced interactive computer graphics lab course teaches the concepts and
techniques of interactive media design. Multimedia, navigation systems and information design are introduced. Emphasis is placed upon advanced Flash scripting, advanced interactive web design, interactive media and video game development. This course is taught through projects, discussions and critiques.

Prerequisites: GRA302 Advanced Computer Graphics, GRA484 Web Design

GRA487 3D Animation Techniques [2-2, 3 cr.]
This advance level animation course explores various animation techniques of three-dimensional modeling and rendering. Emphasis is placed on virtual design environments, imaging for animation and character development. This course is taught through projects, discussions and critiques.

Prerequisite: GRA301 Intermediate Computer Graphics

GRA490 Graphic Design Internship [1 cr.]
This internship course introduces the students to the professional world of graphic design. The students have to choose a printing press and a design firm, a web design firm or an advertising agency to complete the required hours.

Prerequisite: GRA352 Graphic Design II

GRA499 Senior Study [2-2, 3 cr.]
In this senior course level students develop their final year project based upon a previously approved topic proposed in GRA462 Seminar course. Emphasis is placed on students’ ability to translate their cumulative knowledge into effective visual communication developed by a team working in digital and print media. This course is taught through a multi-faceted in-depth design project, critique sessions, a series of juries and culminates in an end-of-year exhibition.

Prerequisites: GRA482 Motion Design, GRA484 Web Design, GRA432 Visual Perception, GRA462 Graphic Design Seminar
Co-requisite: GRA486 Advanced Interactive Design

Pre-requisites for digital students: GRA482 Motion Design, GRA484 Web Design, GRA432 Visual Perception, GRA462 Graphic Design Seminar, GRA486 Advanced Interactive Design


MINOR IN ADVERTISING

The Minor in Advertising prepares students to compete successfully in an environment where knowledge of business practices and a professional appreciation of the creative arts are required.

EDUCATIONAL OBJECTIVES

- Offer a working acquaintance of marketing practices
- Offer an appreciation of media effects, and media diversity
- Introduce an understanding of the differences between public relations advertising and marketing
- Allow students to appreciate the business dimension of the creative arts

LEARNING OUTCOMES

Students completing this minor will be able to:

- Develop a media/advertising plan
- Develop a PR plan, write press releases, create a media kit, produce brochures, and assist in organizing events
- Present an advertising plan to a client
- Do preliminary market research
- Develop and integrate the artistic component of advertising

Required courses (18 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>COM213</td>
<td>Introduction to Public Relations</td>
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<tr>
<td>COM222</td>
<td>Introduction to Radio/TV/Film</td>
</tr>
<tr>
<td>MKT201</td>
<td>Introduction to Marketing</td>
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<td>MKT301</td>
<td>Promotion Management &amp; Integrated Marketing Communications</td>
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<td>GRA431</td>
<td>History of Graphic Design</td>
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<tr>
<td>GRA432</td>
<td>Visual Perception</td>
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</table>

Pre-requisites for digital students:

GRA482 Motion Design, GRA484 Web Design, GRA432 Visual Perception, GRA462 Graphic Design Seminar, GRA486 Advanced Interactive Design

Pre-requisites for print students:

The School of Arts & Sciences

DEAN
Frossard, Philippe

ASSISTANT DEANS
Bacha, Nahla, Byblos
Mansour, Nashat, Beirut

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. It consists of the Dean’s office, six departments, and centers and institutes. The six departments are: Communication Arts; Computer Science and Mathematics; Education; Humanities; Natural Sciences; Social Sciences. These departments, their program offerings, and associated facilities are described in the respective sections. The centers and institutes are described below.

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 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, productive, and life-long learners.
• 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.
CENTERS AND INSTITUTES

INSTITUTE FOR WOMEN’S STUDIES IN THE ARAB WORLD (IWSAW)
This institute was established and sponsored by LAU, and is located on the Beirut campus. IWSAW is a center for documentation, research, action programs, and the communication of issues and data, relating to Arab women and children.

INSTITUTE FOR MEDIA TRAINING & RESEARCH (IMTR)
Providing an interactive platform for media practitioners and students in Lebanon and the region, the IMTR offers leading training programs and coordinates research projects in journalism, film, communication studies, public relations and advertising. As part of LAU’s effort to improve the environment in which it operates, the institute actively seeks to promote a more ethical and professional media practice and a better understanding of the field.

INSTITUTE FOR PEACE AND JUSTICE EDUCATION (IPJE)
This institute is housed in the School of Arts and Sciences. Its aim is to forward the culture of peace through courses, training programs, publications and research, which involve both LAU students and the wider community. Some of the issues addressed include, among others, human rights, conflict resolution, inter-faith dialogue, and peace education pedagogy.

SOFTWARE INSTITUTE
This institute seeks to disseminate modern software engineering practices and recent software technology, and to promote the Lebanese software industry. It also aims to provide advanced and continuing education, and support research and development on software engineering and innovative applications.

TEACHER TRAINING INSTITUTE (TTI)
This institute was established to meet 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.

INSTITUTE FOR DIPLOMACY & CONFLICT TRANSFORMATION (IDCT)
This institute’s mission includes the dissemination of knowledge about diplomacy and conflict management, and its role in international relations. IDCT aims at providing current and aspiring diplomats, as well as individuals who are working (or seeking 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.

INSTITUTE FOR MIGRATION STUDIES (IMS)
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, IMS seeks to offer a superior education, as well as opportunities for rigorous research.

The School of Arts & Sciences

Lebanese American University | page 94
Departement of Communication Arts

CHAIRPERSON
Knio, Mona

ASSOCIATE PROFESSORS
Bousé, Derek
Knio, Mona
Maluf, Ramez
Mohsen, Raed

ASSISTANT PROFESSORS
Dabbous-Sensenig, Dima;
Dabbous, Yasmine;
Nassar, Lina

INSTRUCTORS
Farjallah, Tony

STAFF
Anka, Fouad, Senior Theater Technician
Boustani, Farid, Radio/TV/Film Studio Supervisor
Chdid, George, Theater Technician
Gostanian, Houry, Academic Assistant
Masri, Hala, Theater Coordinator
Mirdas, Rima, Studio Technician
Tabakian, Annie, Studio Technician

DEGREES OFFERED
- BA in Communication Arts
- Minor in Advertising

FACILITIES
The Department houses the following facilities: a newsroom; a TV/Film studio; a radio studio, and two large theaters.

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, and documentary film making;
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. Offer students a well rounded education that will enable them to contribute to the ongoing development of the media, and cultural industries, in the region;
4. Provide 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 research methods, leading them to the production of videos, films, articles, plays, radio/TV programs, or research papers;
5. Demonstrate the ability to operate state of the art equipment in a studio, theater, and 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 creative scholarly research.

CURRICULUM REQUIREMENTS
The explosion of mass communications systems, and fast-paced technological advances, serve as a backdrop for LAU’s Communication Arts Program. The University is a trailblazer in the teaching of mass communication and drama. Its curriculum and facilities are geared to staying abreast of all developments in those fields.

The Program strikes a balance between the carefully crafted theoretical and practical courses in the three emphasis areas: Journalism, Radio/TV/Film and Theater. The Program offers the proper blending of intellectual, cultural, and technical, components needed to create well-rounded dramatists, reporters, broadcasters, and movie makers.

Students learn to write, edit, layout, and design publications in computer equipped journalism newsrooms. Radio and TV studios provide cutting-edge computer animation capabilities, and three first-class theaters offer various dramatic experiences. Seniors are required to undergo internships, in their respective emphasis areas, before graduating.

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:

RADIO/TV/FILM
Core Requirements

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>COM210</td>
<td>Communication Media and Society</td>
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<td>The Art of Film</td>
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<td>COM329</td>
<td>Media Law and Ethics</td>
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<td>Media Research Methods</td>
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<td>COM499</td>
<td>Internship</td>
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Emphasis Requirements

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<tr>
<th>Course</th>
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<tr>
<td>COM235</td>
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<td>COM236</td>
<td>Radio Production</td>
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<tr>
<td>COM324</td>
<td>History &amp; Theory of Film</td>
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<td>COM326</td>
<td>Script Writing</td>
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<td>COM335</td>
<td>Advanced TV Production</td>
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<tr>
<td>COM342</td>
<td>Play Production I</td>
</tr>
<tr>
<td>COM428</td>
<td>Film Making</td>
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<tr>
<td>COM486</td>
<td>Topics in Media Studies</td>
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Suggested Electives

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<td>Introduction to Acting</td>
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<td>COM238</td>
<td>Drama Workshop</td>
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<td>COM251</td>
<td>Interpersonal Communication</td>
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<td>COM255</td>
<td>Current Affairs in Lebanese Media</td>
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<td>COM332</td>
<td>Editing</td>
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<td>COM368</td>
<td>Radio/TV/Film Workshop</td>
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<td>PHO212</td>
<td>Photography II</td>
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<td>WOS412</td>
<td>Representations of Women in the Arts &amp; Media</td>
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JOURNALISM
Core Requirements

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<td>News Writing &amp; Reporting</td>
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<td>COM218</td>
<td>Arabic News Writing &amp; Reporting</td>
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<td>COM221</td>
<td>Arab and International Media</td>
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<td>COM325</td>
<td>Feature &amp; Magazine Writing</td>
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<td>COM327</td>
<td>Journalism Workshop I</td>
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<td>COM361</td>
<td>Broadcast Journalism</td>
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<td>COM422</td>
<td>Journalism Workshop II</td>
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<tr>
<td>COM485</td>
<td>Topics in Current Affairs</td>
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<td>WOS412</td>
<td>Representations of Women in the Arts &amp; Media</td>
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</table>

## THEATER

### Core Requirements
- **COM210** Communication, Media and Society
- **COM222** Introduction to Radio/TV/Film
- **COM225** The Art of Film
- **COM242** Introduction to the Art of Theater
- **COM329** Media Law and Ethics
- **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
- **COM343** Advanced Acting
- **COM487** Theater in Performance

### Suggested Electives
- Same list in addition to following
- **COM213** Public Relations
- **COM238** Drama Workshop
- **COM251** Interpersonal Communication
- **COM255** Current Affairs in Lebanese Media
- **COM332** Editing
- **COM368** Radio/TV/Film Workshop
- **PHO212** Photography II
- **WOS412** Representations of Women in the Arts & Media

### SUGGESTED THREE YEAR STUDY PLAN:
**COMMUNICATION ARTS - JOURNALISM EMPHASIS:**

#### Year I

**Fall**
- **COM222** Intro to R/TV/Film 3cr
- **ENG201** 3cr
- **ARA201** 3cr
- **Social Science course** 3cr
- **LAC Elective** 3cr

**Total** 15cr

**Spring**
- **COM221** Arabic & Int. Media 3cr
- **COM422** Journalism Workshop II 3cr
- **COM485** Topics in Current Affairs 3cr
- **COM499** Internship 1cr
- **PED---** Physical Education 1cr

**Total** 14cr

#### Year II

**Fall**
- **COM214** News Writing & Reporting 3cr
- **COM218** Arabic News Writing 3cr
- **COM225** Art of Film 3cr
- **Social Science course** 3cr
- **Free Elective** 3cr

**Total** 15cr

**Spring**
- **COM242** Introduction to Art of Theater 3cr
- **COM329** Media Law & Ethics 3cr
- **LAC Elective** 3cr
- **Free Elective** 3cr
- **Free Elective** 1cr
- **COM325** Feature & Mag. Writing 3cr

**Total** 16cr

#### Year III

**Fall**
- **COM451** Media Research Methods 2cr
- **COM327** Journalism Workshop I 3cr
- **COM361** Broadcast Journalism 3cr
- **Free Elective** 3cr
- **Free Elective** 3cr

**Total** 15cr

**Spring**
- **COM211** Arabic & Int. Media 3cr
- **COM422** Journalism Workshop II 3cr
- **COM485** Topics in Current Affairs 3cr
- **Free Elective** 3cr

**Total** 11cr
## COMMUNICATION ARTS - RADIO/TV/FILM EMPHASIS:

### Year I

#### Fall

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<td></td>
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#### Spring

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### Year II

#### Fall

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## COMMUNICATION ARTS - THEATER EMPHASIS:

### Year I

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<td>COM210</td>
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<td>Introduction to Acting</td>
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MISSON
The Advertising Minor prepares students to compete successfully in an environment where knowledge of business practices and a professional appreciation of the creative arts are required.

PROGRAM OBJECTIVES
1. Offer a working acquaintance of marketing practices,
2. Offer an appreciation of media effects, and media diversity,
3. Introduce an understanding of the differences between public relations, advertising and marketing, and
4. Allow students to appreciate the business dimension of the creative arts.

LEARNING OUTCOMES
Students completing this minor will be able to:
1. Develop a media/advertising plan,
2. Develop a PR plan, write press releases, create a media kit, produce brochures, and assist in organizing events,
3. Present an advertising plan to a client,
4. Do preliminary market research, and
5. Develop and integrate the artistic component of advertising.

Six courses (3 credits each) are required for the minor. They are:

<table>
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<tr>
<th>Course Code</th>
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<tr>
<td>COM 213</td>
<td>Introduction to Public Relations</td>
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<tr>
<td>COM 222</td>
<td>Introduction to Radio/TV/Film</td>
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<td>MKT 201</td>
<td>Introduction to Marketing</td>
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<td>MKT 301</td>
<td>Promotion Management &amp; Integrated Marketing Communications</td>
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<td>GRA431</td>
<td>History of Graphic Design</td>
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<td>GRA432</td>
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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: ENG102

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 Photojournalism [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 Arab 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.

COM225 The Art of Film [3-0, 3 cr.]
This course is a study of the formal, and aesthetic, 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.

COM235 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.

COM236 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.

COM238 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.

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.

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.

COM324 History and Theory of Film [3-0, 3 cr.]
This course is a study of the development of film from its beginnings.
Prerequisite: COM225 The Art of Film.

COM325 Feature and Magazine Writing [3-0, 3 cr.]
This course is designed to give the student extensive practice in writing different types of feature articles and interviews for newspapers and magazines. Students will develop ideas and assess their market viability; produce query letters attempting to sell those articles, carry out the necessary research and, finally, write the articles.
Prerequisite: COM214 News Writing and Reporting.

COM326 Script Writing [3-0, 3 cr.]
This course covers the principles and techniques of writing radio, television, and film scripts.
Prerequisites: COM222 Introduction to Radio/TV/Film, and ENG202 Sophomore Rhetoric.

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.

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: COM222 Introduction to Radio/TV/Film.

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 Theater.
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.

COM345 Modern Drama [3-0, 3 cr.]
The development of the contemporary theater from Ibsen to the present, as studied in selected European and American plays.
Prerequisite: COM242 Introduction to the Art of Theater or consent of instructor.

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.

COM368 Radio/TV/Film Workshop [3-0, 3 cr.]
This course deals with the different technical aspects in the field of Radio/TV/Film. The course may be repeated, and taken more than once, if the topics differ.
Prerequisite: COM235 Studio TV Production.

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.
Department of Communication Arts

COM487 Topics in Drama and Theater
[3-0, 3 cr.]
This course explores ideas of form, convention, style, and context in drama and theater. It focuses on the different dramaturgical and theatrical approaches to specified topics, theater trends, or schools (Modern Drama, Postmodernism, Documentary Drama, Gender and Theater, Popular Theater...).

This course may be repeated if topics differ.

COM488 Topics in Radio/TV/Film [3-0, 3 cr.]
This course covers the theoretical aspects of selected topics in Radio/TV/Film. The course may be repeated, and taken more than once, if the topics differ. Any additional registration to the core is to be considered as an elective.

Prerequisite: COM326 Script Writing. Senior Standing, or the consent of the Instructor.

COM485 Topics in Current Affairs [3-0, 3 cr.]
This course will provide students with the opportunity to become more mature consumers of current affairs topics, and critical thinkers of the print, internet, and broadcast media. With a more thorough review of the current, local, and international events, students will develop their story selection, investigative, interviewing, and analytical, reporting skills. They will be expected to keep abreast of the latest breaking news stories, covering a wide spectrum of fields such as political, economic, human interest, music, and the visual arts.

Prerequisite: COM210 Communication Media & Society. Senior Standing, or the consent of the instructor.

COM486 Topics in Media Studies [3-0, 3 cr.]
This course presents diverse theoretical, and methodological, perspectives on selected topics relevant to the field of media studies. The course may offer an in-depth analysis of the relevant topics (e.g. ethnic and gender representation, identity politics, minority issues, etc...) related to one medium, or explore one relevant issue across several media.

This class may be repeated if topics differ.

Prerequisite: COM210 Communication Media & Society. Senior Standing, or the consent of the instructor.

COM499 Internship [1-0, 1 cr.]
The Internship course covers professional communication work, in an off-campus setting, appropriate to the student’s emphasis program, providing experience not available in the curriculum. Students may work for print or broadcast (Radio/TV) media, as well as in the theater or in film.

Prerequisite: Senior Standing.

MUSIC

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 covers the development of the basic skills required for teaching music at the elementary school, including singing, moving to rhythm, hearing tonal relations, understanding notation, and using accompanying instruments.

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.

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.
Department of Computer Science and Mathematics

CHAIRPERSONS
Habre, Samer - Beirut Campus
Harmanani, Haidar - Byblos Campus

PROFESSOR
Harmanani, Haidar
Mansour, Nashat

ASSOCIATE PROFESSORS
Abu-Khzam, Faisal
Habre, Samer
Hamdan, May
Haraty, Ramzi
Takchi, Jean

ASSISTANT PROFESSORS
Azar, Danielle
Azzam, Mourad
Nour, Chadi
Sharafeddine, Sanaa
Touma, Rony

LECTURERS
Musallem, Munjid

INSTRUCTORS
Abi Ghanem, Samer
Khalifeh, Joseph

STAFF
Akiki, Sandra, Academic Assistant, Byblos
Shebaro, Dania, Academic Assistant, Beirut
Dana, Tarek, Academic Center Supervisor, Beirut
Moujabber, Bassam, Academic Center Supervisor, Byblos
Alaywan, Ali, Assistant Academic Center Supervisor, Beirut
Kada, Fouad, Academic Computer Center Systems Administrator, Byblos

DEGREES OFFERED
- Bachelor of Science in Computer Science
- Bachelor of Science in Mathematics
- Master of Science in Computer Science
- Minor in Actuarial Studies
- Minor in Computer Science
- Minor in Mathematics

COMPUTER FACILITIES
The Department of Computer Science and Mathematics houses modern state-of-the-art computing and networking technologies that are continually updated and expanded.

The facilities include approximately 250 high-end computing workstations that run both Linux and Microsoft operating systems, Apple Macintosh computers, two high-performance Beowulf Linux Clusters used for teaching and research, and a GPU Computing Center. All workstations and peripherals are networked and served using an IBM BladeCenter.

The computer centers are also equipped with a variety of computing software that are continuously updated, such as programming environments, cluster computing, simulation software, mathematical software and research software tools.
Computer Science programs

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 tradition of the liberal arts education.

UNDERGRADUATE PROGRAMS

BACHELOR OF SCIENCE (B.S.) IN COMPUTER SCIENCE

The Bachelor of Science in Computer Science at LAU provides a fundamental understanding of the theoretical principles of software and digital systems within the context of current technology. The program provides students with a strong background in the fundamentals of mathematics and computer science, and is balanced between theoretical and applied courses that prepare students for a professional career in the area of computer science. Furthermore, in addition to developing computer science skills, the program helps the students obtain an understanding of the human and social aspects of computer systems, and how computer science relates to other disciplines.

EDUCATIONAL OBJECTIVES
The educational objectives of the Bachelor of Science in Computer Science Program are:

1. Prepare graduates for computer science related careers, locally and abroad, with a broad knowledge of the computing field, related principles, tools, and theories.
2. Develop graduates who are committed to life-long learning, capable to work effectively in teams, and who possess good communication skills.
3. Prepare graduates who are aware of cultural, social, legal, and ethical issues inherent in the discipline of computing.

LEARNING OUTCOMES
The outcomes of the Bachelor of Science in Computer Science Program are:

1. Students shall be able to apply their computational and mathematical knowledge in order to solve computational problems.
2. Students shall develop the ability to analyze a problem, identify, define, and verify the computing requirements appropriate to its solution.
3. Students shall have the ability to design, evaluate, and implement an efficient and a correct algorithm, computer-based system, process, component, or program that meets desired needs.
4. Students shall learn to work effectively and interactively in teams in order to accomplish a common goal.
5. Students shall develop an understanding of the ethical and social issues related to computing.
6. Students shall have the ability to effectively present, transmit, and communicate their work, written as well as orally, to colleagues and to clients.
7. Students shall develop the ability to analyze the local and global impact of the computing field on individuals, organizations, and society.
8. Students shall have an understanding of current technology trends as well as future directions and shall recognize the need and develop the necessary skills for continued professional development.
9. Students shall develop the ability to use current techniques, skills, and tools necessary for computing practices.
10. Students shall develop the ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
11. Students shall be able to model, analyze and design computer-based software systems including requirements elicitation, specification, prototyping, design, implementation, tradeoffs analysis, testing and documentation.
12. Students shall develop an understanding of complexity analysis and various algorithmic paradigms.
CURRICULUM REQUIREMENTS

The Program requirements consist 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.

I. Core Requirements (32 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC243</td>
<td>Introduction to Object Oriented Programming</td>
<td>3</td>
</tr>
<tr>
<td>CSC245</td>
<td>Objects and Data Abstraction</td>
<td>3</td>
</tr>
<tr>
<td>CSC310</td>
<td>Algorithms and Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>CSC320</td>
<td>Computer Organization</td>
<td>3</td>
</tr>
<tr>
<td>CSC322</td>
<td>Computer Organization Lab</td>
<td>1</td>
</tr>
<tr>
<td>CSC326</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSC375</td>
<td>Database Management Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSC430</td>
<td>Computer Networks</td>
<td>3</td>
</tr>
<tr>
<td>CSC447</td>
<td>Parallel Programming for Multicore and Cluster Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSC490</td>
<td>Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CSC491</td>
<td>Professional Experience</td>
<td>1</td>
</tr>
<tr>
<td>CSC599</td>
<td>Capstone Project</td>
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II. Computer Science Electives (15 credits)

<table>
<thead>
<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>CSC323</td>
<td>Digital Systems Design</td>
<td>3</td>
</tr>
<tr>
<td>CSC415</td>
<td>Introduction to Bioinformatics</td>
<td>3</td>
</tr>
<tr>
<td>CSC420</td>
<td>Computer Architecture</td>
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<tr>
<td>CSC435</td>
<td>Computer Security</td>
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</tr>
<tr>
<td>CSC440</td>
<td>Advanced Object Oriented Programming</td>
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</tr>
<tr>
<td>CSC443</td>
<td>Web Programming</td>
<td>3</td>
</tr>
<tr>
<td>CSC460</td>
<td>Artificial Intelligence</td>
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<tr>
<td>CSC450</td>
<td>Computer Graphics</td>
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<tr>
<td>CSC458</td>
<td>Game Programming</td>
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<td>CSC495</td>
<td>IT Project Management</td>
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<td>CSC498</td>
<td>Topics in Computer Science</td>
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III. Mathematics (12 credits)

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<tr>
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<tbody>
<tr>
<td>MTH201</td>
<td>Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MTH207</td>
<td>Discrete Structures I</td>
<td>3</td>
</tr>
<tr>
<td>MTH305</td>
<td>Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MTH307</td>
<td>Discrete Structures II</td>
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IV. Mathematics Electives (3 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>MTH301</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MTH303</td>
<td>Numerical Methods</td>
<td>3</td>
</tr>
<tr>
<td>MTH304</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MTH306</td>
<td>Non-Linear Dynamics and Chaos</td>
<td>3</td>
</tr>
<tr>
<td>MTH309</td>
<td>Graph Theory</td>
<td>3</td>
</tr>
<tr>
<td>MTH498</td>
<td>Topics in Mathematics</td>
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V. Science Requirements (3 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>BIO200</td>
<td>Basic Biology</td>
<td>3</td>
</tr>
<tr>
<td>CHM200</td>
<td>Essentials of Chemistry</td>
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VI. Other Requirements (3 credits)

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>CSC480</td>
<td>Social and Ethical Issues in Computing</td>
<td>3</td>
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SUGGESTED THREE-YEAR STUDY PLAN:

Year I

Fall

<table>
<thead>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CSC243</td>
<td>Introduction to Object Oriented Programming</td>
<td>3</td>
</tr>
<tr>
<td>ENG202</td>
<td>Sophomore Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>MTH207</td>
<td>Discrete Structures I</td>
<td>3</td>
</tr>
<tr>
<td>ARA2-/-3-</td>
<td>Arabic Language/Literature</td>
<td>3</td>
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<tr>
<td>PED2-</td>
<td>Physical Education</td>
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<tr>
<td>Free Elective</td>
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Spring

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MTH201</td>
<td>Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>CSC245</td>
<td>Objects and Data Abstraction</td>
<td>3</td>
</tr>
<tr>
<td>CSC320</td>
<td>Computer Organization</td>
<td>3</td>
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<tr>
<td>CSC322</td>
<td>Computer Organization Lab</td>
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<tr>
<td>ENG203</td>
<td>Fundamentals of Oral Communications</td>
<td>3</td>
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<tr>
<td>LACC Elective</td>
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Year II

Fall

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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>CSC310</td>
<td>Algorithms and Data Structures</td>
<td>3</td>
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<tr>
<td>CSC375</td>
<td>Databases Management Systems</td>
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<td>CSC326</td>
<td>Operating Systems</td>
<td>3</td>
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<td>MTH305</td>
<td>Probability and Statistics</td>
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<tr>
<td>ETH201</td>
<td>Moral Reasoning</td>
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<td>HLT 201</td>
<td>Basic Health</td>
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<tr>
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Spring

<table>
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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>CSC490</td>
<td>Software Engineering</td>
<td>3</td>
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<tr>
<td>CSC430</td>
<td>Parallel Programming for Multicore &amp; Cluster Systems</td>
<td>3</td>
</tr>
<tr>
<td>MTH307</td>
<td>Discrete Structures II</td>
<td>3</td>
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<tr>
<td>CSC--</td>
<td>Technical Elective</td>
<td>3</td>
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<tr>
<td>Science Elective</td>
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<tr>
<td>CSC491</td>
<td>Professional Experience</td>
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<td>Total</td>
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<td>16cr</td>
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1 Choose either BIO 200 or CHM 201
2 Internship must be completed in the Summer following the registration. It is equivalent to 60 hours of professional experience spread over a Summer Term.
### Year III

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC430</td>
<td>Computer Networks</td>
<td>3</td>
</tr>
<tr>
<td>CSC480</td>
<td>Social &amp; Professional Issues in Computing</td>
<td>3</td>
</tr>
<tr>
<td>CSC</td>
<td>Technical Elective</td>
<td>3</td>
</tr>
<tr>
<td>CSC</td>
<td>Technical Elective</td>
<td>3</td>
</tr>
<tr>
<td>LACC</td>
<td>Philosophy, Religion, History Elective</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
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<td><strong>15cr</strong></td>
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#### Spring

<table>
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<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CSC599</td>
<td>Capstone Project</td>
<td>3</td>
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<tr>
<td>CSC</td>
<td>Technical Elective</td>
<td>3</td>
</tr>
<tr>
<td>CSC</td>
<td>Technical Elective</td>
<td>3</td>
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<tr>
<td></td>
<td>Mathematics Elective</td>
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<td></td>
<td>LACC Literature LACC Elective</td>
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<tr>
<td><strong>Total</strong></td>
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</table>

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Department of Computer Science and Mathematics

**BS in Computer Science**

Prerequisite Flow Chart
Graduate Programs

MASTER OF SCIENCE IN COMPUTER SCIENCE

The Master of Science in Computer Science aims at encouraging the discovery and transmission of knowledge, the education of students, the training of future faculty, and the general well being of society. The program provides a broad foundation of study in Computer Science while offering an in-depth study in four concentration areas.

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.

LEARNING OUTCOMES

Graduates in the M.S. in Computer Science Program will:

1. Have an understanding of the advanced concepts in computer algorithms design, and analysis.
2. Be armed with a broad computer science education that includes theory, computer systems, hardware principles, computer networks, and software engineering.
3. Have a deep understanding of the fundamental knowledge prerequisite for the practice of, or for advanced study in, computer science, including its scientific principles and rigorous analysis.
4. Have a deep understanding of one of the following computer science areas: Theory and Algorithms, Computer Systems, Hardware Principles, and Software Engineering.
5. Develop basic, and applied, research and innovation skills, and learn how to investigate the recent developments in the computing field that are not found in textbooks, by properly utilizing professional literature and academic journals.

6. Develop the skills of oral presentation, research documentation and technical writing, and independent study.

ADDITIONAL ADMISSIONS REQUIREMENTS

In addition to the admissions requirements that are explicitly stated in the Graduate Programs Academic Rules, Algorithms and Data Structures (CSC 310) is a required course from all students who have finished a non-computer science degree and apply for MS in Computer Science at LAU. The course may be taken as a remedial course after admission.

CURRICULUM REQUIREMENTS

Students need 30 credits for graduation, with one required 3-credit course (CSC711) and three additional courses, one from each concentration area. The remaining courses may be chosen from any of the four areas without restrictions.

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 3
CSC799 Thesis Option 6

III. Electives from four concentration areas (12 or 15 credits)

A. Algorithms, Theory & Computational Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CSC711</td>
<td>Design and Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CSC712</td>
<td>Automata Theory and Formal Languages</td>
<td>3</td>
</tr>
<tr>
<td>CSC713</td>
<td>Bioinformatics</td>
<td>3</td>
</tr>
<tr>
<td>CSC714</td>
<td>Heuristic Optimization</td>
<td>3</td>
</tr>
<tr>
<td>CSC715</td>
<td>Machine Learning</td>
<td>3</td>
</tr>
<tr>
<td>CSC716</td>
<td>Cryptography and Data Security</td>
<td>3</td>
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B. Systems

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
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<td>CSC721</td>
<td>Transaction Processing Systems</td>
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</tr>
<tr>
<td>CSC722</td>
<td>Distributed Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSC723</td>
<td>Knowledge-Based Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSC724</td>
<td>Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>CSC725</td>
<td>System Simulation</td>
<td>3</td>
</tr>
<tr>
<td>CSC726</td>
<td>Compilers</td>
<td>3</td>
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C. Hardware and Networks

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CSC731</td>
<td>High Performance Computer Architecture</td>
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</tr>
<tr>
<td>CSC732</td>
<td>ULSI Testing</td>
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<tr>
<td>CSC733</td>
<td>Embedded Systems</td>
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</tr>
<tr>
<td>CSC734</td>
<td>Advanced Computer Networks</td>
<td>3</td>
</tr>
<tr>
<td>CSC736</td>
<td>Networks Security</td>
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<tr>
<td>CSC737</td>
<td>Pervasive Computing and Wireless Networking</td>
<td>3</td>
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D. Software Engineering

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>CSC791</td>
<td>Advanced Software Engineering</td>
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<tr>
<td>CSC792</td>
<td>Object-Oriented Software Engineering</td>
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</tr>
<tr>
<td>CSC793</td>
<td>Software Testing and Analysis</td>
<td>3</td>
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<tr>
<td>CSC794</td>
<td>Software Quality Assurance</td>
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<td>CSC795</td>
<td>Safety-Critical Systems</td>
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<td>CSC796</td>
<td>Human–Computer Interaction</td>
<td>3</td>
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<tr>
<td>CSC788</td>
<td>Advanced Topics in Computer Science</td>
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Mathematics programs

BACHELOR OF SCIENCE (B.S.) IN MATHEMATICS

MISSION

The mission of the Mathematics Program is to offer quality and broad education in mathematics, supported by a foundation in the liberal arts. The program aims at providing its graduates with the knowledge and skills to teach at all school levels, and to pursue higher degrees in mathematics and other related fields.

EDUCATIONAL OBJECTIVES

The proposed curriculum provides the students with a strong background in the skills of logic, reasoning, critical thinking, and technology. More particularly, the curriculum:

1. Covers the traditional aspect of a mathematics major and supplements the students with courses covering contemporary mathematical topics
2. Offers a combination of pure and applied mathematics
3. Permits the students to obtain a broad exposure to those fields of mathematics that are useful in the physical sciences, engineering, and others
4. Provides specific courses designed for students who plan to become teachers of mathematics
5. Provides the appropriate mathematical background for students who wish to pursue graduate studies in mathematics or other related fields.

LEARNING OUTCOMES

Students who successfully complete the mathematics major will be able to:

1. Exhibit an understanding of the nature of mathematics.
2. Reason with abstract concepts.
3. Follow complex mathematical arguments and develop mathematical arguments of their own.
4. Understand and assess mathematical proofs and construct appropriate mathematical proofs of their own.
5. Communicate mathematical ideas, proofs and conclusions successfully.
6. Understand the branches of mathematics and how they are related.
7. Demonstrate knowledge of essential areas in mathematics such as algebra, analysis, and probability and statistics, with the opportunity to become acquainted with the fields of number theory, mathematical logic, combinatorics, geometry and topology.
8. Demonstrate knowledge of applied mathematics such as dynamical systems, numerical analysis and graph theory.
9. Use their understanding of some of the more advanced ideas within mathematics development of their capability for working with abstract concepts.
10. Perform mathematical computations using a computer package when appropriate.
11. Work effectively in a professional workplace related to mathematics or in a graduate program.

CURRICULUM REQUIREMENTS

The Program requirements consist of a minimum of 92 credits. The major core requirements consist of 9 mathematics courses (27 credits), 6 additional mathematics courses (18 credits) to be chosen from a list of elective courses, one course in computer science (3 credits), and 2 courses chosen from a list of restricted electives (6 credits), and 4 credits of free electives.
I. Mathematics Core Courses (27 credits)

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<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>MTH 201</td>
<td>Calculus III</td>
<td>3</td>
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<td>MTH 207</td>
<td>Discrete Structures I</td>
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</tr>
<tr>
<td>MTH 301</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MTH 305</td>
<td>Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MTH 311</td>
<td>Abstract Algebra</td>
<td>3</td>
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<tr>
<td>MTH 401</td>
<td>Real Analysis I</td>
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<tr>
<td>MTH 404</td>
<td>Introduction to Topology</td>
<td>3</td>
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<tr>
<td>MTH 403</td>
<td>Introduction to Complex Analysis</td>
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Choose one of:

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<tr>
<td>MTH 410</td>
<td>Real Analysis 2</td>
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<td>MTH 411</td>
<td>Advanced Topics in Abstract Algebra</td>
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II. Mathematics Electives
(Choose 6 courses; total 18 credits)

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<td>MTH 206</td>
<td>Calculus IV</td>
<td>3</td>
</tr>
<tr>
<td>MTH 302</td>
<td>Geometry</td>
<td>3</td>
</tr>
<tr>
<td>MTH 303</td>
<td>Numerical Methods</td>
<td>3</td>
</tr>
<tr>
<td>MTH 304</td>
<td>Differential Equations</td>
<td>3</td>
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<tr>
<td>MTH 306</td>
<td>Nonlinear Dynamics and Chaos</td>
<td>3</td>
</tr>
<tr>
<td>MTH 308</td>
<td>Number Theory</td>
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<td>MTH 309</td>
<td>Graph Theory</td>
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<td>MTH 310</td>
<td>Set Theory</td>
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<tr>
<td>MTH 400</td>
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<tr>
<td>MTH 410</td>
<td>Real Analysis 2</td>
<td>3</td>
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<tr>
<td>MTH 411</td>
<td>Advanced Topics in Abstract Algebra</td>
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</tr>
<tr>
<td>MTH 498</td>
<td>Topics in Mathematics</td>
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III. Computer Science Requirement
(total 3 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>CSC 243</td>
<td>Object Oriented Programming</td>
<td>3</td>
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IV. Restricted Electives (total 9 credits)

Students are required to complete nine credits numbered 200 and above from Actuarial Science, Natural Sciences, Computer Science, Engineering, and Business. The following is a suggested list of courses: MTH 402 Theory of Interest, MTH 406 Life Contingencies I, MTH 403 Life Contingencies II, FIN 321 Introduction to Insurance; MIS 211 and MIS 212 Management Information Systems 1 and 2; CIE 200 Statics; CIE 202 Mechanics of Materials; ELE 201 and 202 Electrical Circuits 1 and 2; INE 302 Linear Programming; MEE 241 Dynamics; MEE 320 Strength of Materials.

SUGGESTED THREE-YEAR STUDY PLAN:

Year I

<table>
<thead>
<tr>
<th>Term</th>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>MTH201</td>
<td>Calculus III</td>
<td>3</td>
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<tr>
<td></td>
<td>MTH207</td>
<td>Discrete Structures I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>CSC201</td>
<td>Computer Applications</td>
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<td></td>
<td>CSC243</td>
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<td>ENG202</td>
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<td>MTH305</td>
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Year II

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<td>Real Analysis 1</td>
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<td>HLT201</td>
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<td>Summer</td>
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Year III

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<td>Math Elective</td>
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<td></td>
<td>Liberal Arts Elective</td>
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<tr>
<td></td>
<td>Restricted Elective</td>
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<tr>
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<td>Free Elective</td>
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MINOR IN COMPUTER SCIENCE

EDUCATIONAL OBJECTIVES
The objectives of the minor in computer science are to:

1. Provide graduates with computing skills to be better prepared for the job market;
2. Provide graduates with basic knowledge of the computing field, related principles, and tools.

LEARNING OUTCOMES
Students who successfully complete the Minor in Computer Science shall:

1. Develop the ability to analyze a problem, identify, define, and verify the computing requirements appropriate to its solution;
2. Develop the ability to use current techniques, skills, and tools necessary for computing practices;
3. Develop programming skills using modern languages;
4. Apply their computational and mathematical knowledge in order to solve computational problems.

CURRICULUM REQUIREMENTS
The Computer Science minor consists of five Computer Science courses, and one Mathematics course that are directly related to computing. The courses include 9 core credits, and 9 credits of elective courses that can be chosen from a list of courses. A cumulative GPA of 2.0 is required for the 18 required credits in order to earn a minor in Computer Science.

I. Core Courses (9 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 243</td>
<td>Introduction to Object Oriented Programming</td>
</tr>
<tr>
<td>CSC 245</td>
<td>Objects and Data Abstractions</td>
</tr>
<tr>
<td>MTH 207</td>
<td>Discrete Structures I</td>
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II. Elective Courses (9 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>CSC 310</td>
<td>Algorithms and Data Structure</td>
</tr>
<tr>
<td>CSC 320</td>
<td>Computer Organization</td>
</tr>
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<td>CSC 326</td>
<td>Operating Systems</td>
</tr>
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<td>CSC 375</td>
<td>Database Management Systems</td>
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<tr>
<td>CSC 430</td>
<td>Computer Networks</td>
</tr>
<tr>
<td>CSC 490</td>
<td>Software Engineering</td>
</tr>
</tbody>
</table>

Any approved Computer Science elective at the 400 level or above.

MINOR IN MATHEMATICS

EDUCATIONAL OBJECTIVES
The objective of the mathematics minor is to provide students with a strong background in the skills of logic, reasoning, and critical thinking. More precisely the objectives aim to:

1. Cover basic topics of a major in mathematics and supplements the students with elective courses from various mathematical fields.
2. Provide courses designed for students who plan to pursue a graduate degree in Mathematics or in Education with an emphasis in Mathematics.

LEARNING OUTCOMES
Students who successfully complete the Mathematics minor will be able to:

1. Exhibit an understanding of the nature of mathematics
2. Reason with abstract concepts
3. Follow complex mathematical arguments and develop their own mathematical arguments.

The following courses totalling 21 credits are recommended for the Minor in Mathematics. The Minor can be taken by students from any major.

I. Mathematical Core Requirements (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 201</td>
<td>Calculus III</td>
<td>3</td>
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<tr>
<td>MTH 207</td>
<td>Discrete Structures I</td>
<td>3</td>
</tr>
<tr>
<td>MTH 301</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MTH 311</td>
<td>Abstract Algebra</td>
<td>3</td>
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</table>

or

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 401</td>
<td>Real Analysis I</td>
<td>3</td>
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</table>

II. Mathematics Electives (9 credits)

Students ought to complete successfully at least one course from each of the following two lists of courses:

List 1:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MTH 302</td>
<td>Geometry</td>
<td>3</td>
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<td>MTH 308</td>
<td>Number Theory</td>
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</tr>
<tr>
<td>MTH 403</td>
<td>Introduction to Topology</td>
<td>3</td>
</tr>
<tr>
<td>MTH 303</td>
<td>Numerical Methods</td>
<td>3</td>
</tr>
<tr>
<td>MTH 305</td>
<td>Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MTH 311</td>
<td>Abstract Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>

List 2:
MINOR IN ACTUARIAL STUDIES

EDUCATIONAL OBJECTIVES
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:

1. The ability to understand basic actuarial problems;
2. The ability to model basic actuarial problems using mathematical, probabilistic and statistical methods;
3. The ability to solve actuarial problems by applying actuarial mathematics in life contingencies and to apply the concepts of actuarial science in solving problems related to financial security.

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

I. Mathematical Requirements (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 201</td>
<td>Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MTH 305</td>
<td>Probability and Statistics</td>
<td>3</td>
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</table>

II. Business Requirements (6 credits)

<table>
<thead>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ECO 201</td>
<td>Microeconomics</td>
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</tr>
<tr>
<td>ECO 202</td>
<td>Macroeconomics</td>
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III. Actuarial Mathematics Courses (9 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 402</td>
<td>Theory of Interest</td>
<td>3</td>
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<tr>
<td>MTH 406</td>
<td>Life Contingencies I</td>
<td>3</td>
</tr>
<tr>
<td>MTH 408</td>
<td>Life Contingencies II</td>
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</table>

or

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 401</td>
<td>Real Analysis 1</td>
<td>3</td>
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List 2:

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<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MTH 304</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MTH 306</td>
<td>Nonlinear Dynamics &amp; Chaos</td>
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<td>MTH 309</td>
<td>Graph Theory</td>
<td>3</td>
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<td>MTH 307</td>
<td>Discrete Structures II</td>
<td>3</td>
</tr>
<tr>
<td>MTH 206</td>
<td>Calculus IV</td>
<td>3</td>
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COURSE DESCRIPTIONS

UNDERGRADUATE COMPUTER SCIENCE

CSC 201 Computer Applications [1-0, 1 cr.]
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.

CSC 241 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.

CSC 242 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.

CSC 243 Introduction to Object Oriented Programming:
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 stepwise refinement, pseudo-code,
introduction to the object-oriented paradigm (abstraction, objects, classes, entity and application classes, class libraries, methods, encapsulation, class interaction, aggregation), inheritance, 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: object oriented concepts, such as, composition, inheritance, polymorphism, information hiding, and interfaces; basic program design and correctness, such as, abstract data types, preconditions and post conditions, assertions and loop invariants, testing, basic exception handling, and the application of algorithm design techniques. The course also covers: basic algorithmic analysis, time and space tradeoffs in algorithms, big-O notation; fundamental data structures and applications, such as, collections, single- and double-linked structures, stacks, queues, and trees; performance issues for data structures; recursion, more sorting algorithms.

Prerequisite: CSC 243: 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. Recurrence relations, sets, hashing and hash tables, trees and binary trees (properties, tree traversal algorithms), heaps, priority queues, and graphs (representation, depth- and breath-first traversals and applications, shortest-path algorithms, transitive closure, network flows, topological sort). The course also covers the sorting algorithms and performance analysis which include mergesort, quicksort and heapsort. As well, the course details the fundamental algorithmic strategies (divide-and-conquer approach, greedy, dynamic programming, and backtracking). Introduction to NP-completeness theory.

Prerequisites: CSC 245: Objects and Data Abstraction and MTH207: Discrete Structures I.

CSC320 Computer Organization [3-0, 3 cr.]
Overview of the history of the digital computer, representation of numeric data, introduction to digital logic, logic expressions and Boolean functions, logic functions minimization, Processor and system performance, Amdahl's law. Introduction to reconfigurable logic and special-purpose processors. Introduction to instruction set architecture, and microarchitecture. Processor structures, instruction sequencing, flow-of control, subroutine call and return mechanism, structure of machine-level programs, low level architectural support for high-level languages. Memory hierarchy, latency and throughput, cache memories: operating principles, replacement policies, multilevel cache, and cache coherency. Register-transfer language to describe internal operations in a computer, instruction pipelining and instruction-level parallelism (ILP), overview of superscalar architectures. Multicore and multithreaded processors.

Co-requisite: CSC 245: Objects and Data Abstraction, MTH 207: Discrete Structures I.

CSC322 Computer Organization Lab
[3-0, 1 cr.]
Students gain experience with computer organization techniques by designing and implementing actual circuits using a high-level language, Verilog HDL and FPGAs. Course culminates in the design and simulation of a complete pipelined CPU.


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 nonnumeric 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.]
Introduces the fundamentals of operating systems design and implementation. Topics
include operating system components; process scheduling; interprocess communication; process synchronization (semaphores and monitors); mutual exclusion problem; deadlock handling mechanisms; concurrent execution; multithreading; interrupt handling in a concurrent environment; mutual exclusion; virtual memory; page placement and replacement policies; caching; fundamental concepts of file systems.

Prerequisite: CSC 245: Objects and Data Abstraction and CSC 320: Computer Organization.

CSC 331 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: CSC 242 Introduction to Computer Programming.

CSC 332 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 web-site creation, multimedia data technologies, scripting languages, simple Java applets, human-computer interaction aspects of web-page design, graphical user interface design, security issues and firewalls, and issues regarding the use of intellectual property on the web.

Prerequisite: CSC 242 Introduction to Computer Programming.

CSC 372 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 databases. 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: CSC 242 Introduction to Computer Programming.

CSC 375 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 transactions at the SQL level.

Prerequisite: CSC 245: Objects and Data Abstraction and MTH 201: Calculus III.

CSC 392 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: CSC 242 Introduction to Computer Programming.

CSC 398 Selected Topics in Computer Science [3-0, 3 cr.]
This course may be repeated for credits.

CSC 415 Introduction to Bioinformatics [3-0, 3 cr.]
This course provides an introduction to modern computational practices in bioinformatics. Topics include computational methods for: fragment assembly; sequence alignment; modeling evolution; gene finding; gene expression; protein structure and function.

Prerequisite: CSC 310: Data Structures & Algorithms.

CSC 420 Computer Architecture [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 multiprocessing and cache coherency problem, as well, the course tackles parallel processing.

Prerequisite: CSC 323 Digital Systems Design.
CSC 430 Computer Networks [3-0, 3 cr.]
This course introduces the structure, implementation, and theoretical underpinnings of computer networks. Topics include network structure, performance metrics, circuit switching and packet switching, the Internet protocol stack, physical layer networking concepts, data link layer technologies and protocols, internetworking and routing, transport layer protocols, application layer protocols, client-server programming, and emerging technologies.

Prerequisite: CSC326 Operating Systems

CSC435 Computer Security [3-0, 3 cr.]
Introduction to computer security including formal models of security, security goals and fundamentals (confidentiality, integrity, availability, etc.), introduction to risk assessment and management, security standards in government and industry (e.g., Common Criteria, Orange Book, etc.), corporate and institutional security policies, evaluation process and levels, computer system protection principles, access controls, cryptography fundamentals, authentication, operations, software attacks including malicious code and buffer overflows, social engineering, injection attacks, and related defense tools, network attacks including denial of service, flooding, sniffing and traffic redirection, defense tools and strategies, web sites attacks including cross-site scripting, IPSec, Virtual Private networks and Network Address Translation, and ethics. Hands-on experience is part of the class.

Prerequisite: CSC326 Operating Systems.

CSC 440 Advanced Object Oriented Programming [3-0, 3 cr.]
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, graphics, graphical user interface components, event-based programming, applets, strings and characters, bit manipulation, exception handling, files and streams, collections, multimedia, multithreading, accessing databases, and design patterns.

Prerequisite: CSC 245: 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.

Prerequisite: CSC30: Data Structures & Algorithms.
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.
Prerequisite: CSC310 Algorithms and Data Structures.

CSC480 Social and Professional Issues in Computing [3-0, 3 cr.]
This course covers the social impact, implications, and effects, of computers on society, and the responsibilities of computer professionals in directing the emerging technology. Topics include the history of computing, the legal and ethical responsibilities of professionals, the risks to the public, Internet censorship, industrial intelligence gathering, intellectual property issues and software copyrights, environmental concerns, medical and biotechnology ethics, hacking, professional liability, "malware" and viruses, whistle blowing, privacy, data security, and universal accessibility.
The course includes literate business writing, oral presentations, debates, job hunting and interviewing, professional etiquette, critical thinking, and peer reviewing.

CSC490 Software Engineering [3-0, 3 cr.]
This course presents the techniques for developing reliable, and cost-effective, medium-to-large-scale object-oriented and classical software. It also involves project development to implement these techniques. Topics include the software life-cycle and process models, the software requirements elicitation, specification, and validation techniques, the design techniques for object-oriented and classical software (architectural, and component, level design and the basic unified modeling language diagrams), software testing (black box and white box testing techniques), unit, integration, validation, and system testing, as well as the basic software project management and quality issues, and the documentation and technical writing, and the use of CASE tools.
Corequisite: CSC375 Database Management Systems.

CSC491 Professional Experience [0-3, 1 cr.]
Students participate in a project-based Professional Experience in the junior year. The department requires evidence of project-based work and relevant professional experience.
Co-requisite: CSC490: Software Engineering

CSC495 IT Project Management [3-0, 3 cr.]
This course introduces managing projects within an organizational context as well as managing the changes resulting from introducing or revising information technology systems. Topics include project lifecycle, project stakeholders, project management skills (leading, communicating, negotiating, influencing, and presenting), change control (scope, schedule, cost, quality, risk, project team, and senior management), project planning (definition, scope, schedule, costs, quality, resources, and risks), contingency planning, project reporting and controls (definition, scope, schedule, costs, quality, resources, and risks), the role of IT in organizational change, activities required to ensure the success of IT projects (training, job redesign, communication, etc.). Students are expected to develop detailed project plans, schedules, and budgets; estimate project resources; allocate/coordinate resources; and interface with management. Hands-on experience using project management software.
Co-requisite: CSC490: Software Engineering

CSC498 Topics in Computer Science [3-0, 3 cr.]
This course covers selected topics in computer science. This course may be repeated for credits.

CSC599 Capstone Project [3-0, 3 cr.]
This course is a standalone project course that allows students to integrate the many concepts, and skills, they have learned. The course requires the design, implementation, and oral presentation of a complete significant team project.
Prerequisite: CSC490: Software Engineering.

GRADUATE COMPUTER SCIENCE

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, pair wise 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.

CSC721 Transaction 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, 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.

CSC722 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 invocation, distributed file systems, file service architecture, name services, directory and discovery services, distributed synchronization and coordination, and distributed multimedia systems.

CSC723 Knowledge-Based Systems [3-0, 3 cr.]
This course covers the knowledge representation, search techniques, logical reasoning, and language understanding. It is an introduction to the methodology of design, and the implementation of expert systems. The emphasis of the course is on the techniques for representing and organizing domain and control knowledge, as opposed to the theory and implementation of inference engines.

CSC724 Data Mining [3-0, 3 cr.]
This course covers the fundamental techniques and applications for mining databases. Topics include related concepts from machine learning, information retrieval and statistics, techniques and algorithms for
classification, clustering, and association rules (spatial, temporal, and multimedia mining; web models), techniques and algorithms for mining the web based on its structure, content, and usage, and the scalable and distributed data mining algorithms.

CSC725 System Simulation [3-0, 3 cr.]
This course covers the model construction and simulation applied to problems taken from such diverse fields as economics, social science, communication networks and computer systems. It includes programming in simulation languages such as SIMSCRIPT, SIMULA or GPSS. Students will be able to analyze a problem, and determine whether simulation techniques could be used to solve it. Students are also required to develop a viable model of the system program, and to execute a computer simulation of the model, and finally analyze the results of the simulation.

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 recognizers 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 actuators, 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.

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.

CSC 737: Pervasive Computing and Wireless Networking [3-0, 3 cr.]
Covers the fundamental principles of pervasive and mobile computing in addition to the design of state-of-the-art wireless technologies and wireless networking protocols. Topics include pervasive and mobile computing fundamentals and challenges; pervasive and mobile computing services and application areas; mobile device technologies; mobile device platforms; mobile device application
development challenges; mobile device programming; wireless network architectures; WLAN, WiMAX, GSM, UMTS, and Bluetooth wireless technologies; Mobile IP; Wireless TCP; pervasive computing and wireless networking research trends.

**CSC791 Advanced Software Engineering**

[3-0, 3 cr.]

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, software management and quality, and web engineering. Students will explore in depth current research work on a topic of their choice.

**CSC792 Object-Oriented Software Engineering**

[3-0, 3 cr.]

Techniques, modeling languages, and processes for object-oriented (OO) software development. Topics include: unified modeling language: structural, behavioral, and architectural models; OO development process such as Unified Process; OO analysis and design; OO testing; OO metrics; design patterns.

**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.

**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.

**UNDERGRADUATE MATHEMATICS**

**MTH101 Calculus I**

[3-0, 3 cr.]

The course is an intuitive approach to the techniques of calculus and analytic geometry. Topics include functions, graphs, trigonometric functions, rates of change, limits and continuity, the derivative function, the derivative as a rate of change, differentiation rules, derivatives of trigonometric functions, the chain rule, implicit differentiation, extreme values of a function, the Mean Value and Intermediate Value Theorems, curve sketching, optimization, linearization and differentials, L'Hopital's rule, and an introduction to anti-derivatives.
MTH102 Calculus II [3-0, 3 cr.]
This course covers mainly integration. Topics include indefinite integrals, integral rules, integration by substitution, estimating with finite sums, Riemann sums and definite integrals, the fundamental theorem of Calculus, substitution in definite integrals, applications of integrals (areas between curves and volumes by slicing, volumes by cylindrical shells, and lengths of plane curves), transcendental functions (logarithms, exponential functions, inverse trigonometric functions), and some basic techniques of integration (integration by parts, and trigonometric integrals). In addition, the course covers differential equations and modeling (first order separable differential equations, linear first order differential equations), vectors in the plane and in space, as well as dot and cross products, lines and planes in space, and a brief introduction to conics (ellipse, hyperbola, parabola).
Prerequisite: MTH101 Calculus I.

MTH111 Basic Mathematics [3-0, 3 cr.]
This is a survey course that covers a variety of basic mathematical topics. The course provides a background in numeration systems, logic, set theory, relations and functions, linear programming, quantitative reasoning, and probability.

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, systems of equations and matrices, 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 hyperbolic functions, integration techniques and improper integrals. The course covers also infinite sequences and series: limits of sequences of numbers, bounded sequences, integral test for series, comparison tests, ratio and root tests, alternating series, absolute and conditional convergence, power series, Taylor and Maclaurin series, and applications of power series. Polar functions, polar coordinates, and graphing of polar curves are also covered. In addition, topics from multivariable calculus are introduced: functions of several variables, partial derivatives, double integrals, applications to double integrals, and double integrals in polar form.
Prerequisite: MTH102 Calculus II.

MTH206 Calculus IV [3-0, 3 cr.]
This course covers the Fourier series, cylinders and quadric surfaces, vector-valued functions, arc length and the unit tangent vector, curvature and the unit normal vector, torsion and the binormal vector, partial derivatives and applications, the chain rule, directional derivatives, gradient vectors, tangent planes, linearization and differentials, extreme values and saddle points, Lagrange multipliers, triple integrals, triple integrals in cylindrical and spherical coordinates, integration in vector fields, line integrals, circulation and flux, potential functions and conservative fields, the Fundamental Theorem of Line Integrals, Green’s theorem, surface integrals, parametric surfaces, Stokes and divergence theorems.
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, logical connectives, truth tables, normal forms, validity, predicate logic, universal and existential quantification, and the limitations of predicate logic. Also, the following topics are covered: the number system, the Euclidean algorithm, proof techniques, mathematical induction, counting arguments, permutations and combinations, binomial coefficients, sets, functions, relations, matrices, and Boolean Algebra.

MTH301 Linear Algebra [3-0, 3 cr.]
This 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 solutions 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, estimation and tests of statistical hypotheses. More specifically, the topics of this course include: Random variables, discrete probability, conditional probability, independence, expectation, standard discrete and continuous distributions, regression and correlation, point and interval estimation. Also included are illustrations from various fields.

Prerequisite: MTH 201 - 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
This course covers computational complexity and order analysis, recurrence relations and their solutions, graphs and trees, elementary computability, classes P and NP problems, NP-completeness (Cook’s theorem), NP-complete problems, reduction techniques, automata theory including deterministic and nondeterministic finite automata, equivalence of DFAs and NFAs, regular expressions, the pumping lemma for regular expressions, context-free grammars, Turing machines, nondeterministic Turing machines, sets and languages, uncomputable functions, the halting problem, implications of uncomputability, Chomsky hierarchy, and the Church-Turing thesis.

Prerequisites: MTH207: Discrete Structures I, and MTH201: Calculus III.

MTH 308: Number Theory
Topics covered are: The history of number representation systems, divisibility, greatest common divisor and prime factorization, linear Diophantine equations, congruences, and condition congruences.

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.

MTH 310: Set Theory
Operations on sets and families of sets, ordered sets, transfinite induction, axiom of choice and equivalent forms, and ordinal and cardinal numbers.

Prerequisite: MTH207

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: MTH207 Discrete Structures I, and Junior Standing.

MTH 400: Advanced Linear Algebra
A thorough treatment of vector spaces and linear transformations over an arbitrary field; the Hamilton-Cayley Theorem, similarity, the Jordan Normal form, the dual of a linear transformation, direct sums, canonical forms, orthogonal and unitary transformations, normal matrices, and selected applications of linear algebra.

Prerequisite: MTH 301

MTH 401 Real Analysis I [3-0, 3 cr.]
Topics covered are: Metric spaces, basic topics in topology, numerical sequences and series, continuity and uniform continuity of functions, differentiation, the mean-value theorem, Taylor’s theorem, and the Riemann-Stieljes integral.

Prerequisite: MTH201 Calculus III, MTH 207 Discrete Structures I, MTH 301 Linear Algebra
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, installment loans, depreciation, depletion and capitalized cost.
Prerequisite: MTH102 and junior standing

MTH 403: Introduction to Complex Analysis
Topics covered are: The algebra of complex numbers, analytic functions, complex integration, Cauchy's integral formula, singularities, residues, poles, Taylor and Laurent series.
Prerequisite: MTH 401

MTH 404: Introduction to Topology
Topics covered are: General topological spaces, connectedness, compactness, continuity, and product spaces.
Prerequisite: MTH 401

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: MTH305 Probability and Statistics, MTH 402 Theory of Interest.

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.

MTH 410: Real Analysis 2
This course will continue to cover the fundamentals of real analysis, concentrating on the Riemann integral, convergence of sequences and series of functions, functions of several variables, integration of differential forms, curl, divergence and Stoke's theorem.
Prerequisite: MTH 206, MTH 401

MTH 411: Advanced Topics in abstract Algebra
This course is a continuation of Abstract Algebra and topics covered include ring theory, Galois Theory, unique factorization, Principal Ideal Domain, Unique Factorization Domain, and some Diophantine Equations.
Prerequisite: MTH 311

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.

UNDERGRADUATE STATISTICS

STA202 Applied Statistics [3-0, 3cr.]
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 BUS210 Business Statistics.

STA205 Biostatistics [3-0, 3cr.]
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.
Department of Education

CHAIRPERSON
Osta, Iman

PROFESSOR
Majdalani, Mona

ASSOCIATE PROFESSORS
Bahous, Rima
Nabhani, Mona
Oueini, Ahmad
Osta, Iman

ASSISTANT PROFESSORS
Amin, Tamer;
Kaloustian, Garene

STAFF
Noueiri, Dina, Academic Assistant

DEGREES OFFERED
• BA in Education with two emphases:
  i. Early Childhood Education
  ii. Elementary Education
• BA in Teaching of Arabic as a Foreign Language (TAFL)*
• BA in Teaching of English as a Foreign Language (TEFL)*
• MA in Education
• Teaching Diploma in
  i. Elementary Education
  ii. Early Childhood Education
  iii. Various subject matters at the Intermediate and Secondary Education: (Math, Science, Social Studies, English Language)

*Currently frozen

SUPPOTING FACILITIES

Early Childhood Education Laboratory School (ECE LS)

LAU’s ECE LS is a modern-day regular preschool that caters to children between 2.5/3-5 years of age. It adopts an integrated holistic child-centered approach to child’s learning and development. The preschool is fully equipped with a lab setting consisting of 2 observation booths overlooking the 2 classrooms, with one-sided mirrors, video cameras, sound systems, dimmer lights, and computers, all connected to the classrooms to allow for uninterrupted observations for parents, students, visiting teachers, faculty, and staff.

The role of the Lab School is twofold: 1. To provide quality care for the children, in a caring, nurturing and child-centered environment, both in its physical set-up and teachers and staff; and 2. From an academic perspective, the Lab School welcomes a multidisciplinary approach: while its primary purpose is to serve as a professional learning platform for students majoring in Early Childhood Education, students majoring in education, psychology, music, drama, nursing, among others can also benefit from its existence. Another important aspect of the Lab School is the rich environment it creates for early childhood research in both development and education. Through this, it encourages the community to be more involved as well as collaborative research between faculties within the academic milieu, locally, regionally and internationally.
MISSION

Under the umbrella of LAU’s Vision, the Mission of the BA in Education (ECE & Elementary) is to prepare professional 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 BA in Education (ECE & Elementary) 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 (in early childhood education).
   - An awareness of the national curriculum objectives and standards.

B. Practical Skills
   - Diverse approaches to instruction, and assessment.
   - 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 BA in Education (ECE & Elementary) 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.

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 dramas, 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.

CURRICULUM REQUIREMENTS

The BA in Education requires a total of 95 credits, which includes:

The Core Requirements - These include the General Education courses.
The Emphasis Requirements—These include courses in the content area, such as English, Arabic, Social Studies, Math, and Science, Drama, etc..., and Methods courses, such as teaching of social studies, Art Education etc...

Practicum and Methodology

I. Liberal Arts Curriculum Requirements
   (34 Credits)

II. Educational Requirements
   A. Core Course for all Education Majors
      (24 credits)

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<td>EDU499</td>
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</tr>
<tr>
<td>PSY295</td>
<td>3</td>
</tr>
</tbody>
</table>

B. Methods Courses (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM337</td>
<td>3</td>
</tr>
<tr>
<td>ART333</td>
<td>3</td>
</tr>
<tr>
<td>MUS301</td>
<td>3</td>
</tr>
<tr>
<td>EDU312</td>
<td>3</td>
</tr>
<tr>
<td>EDU313</td>
<td>3</td>
</tr>
<tr>
<td>EDU314</td>
<td>3</td>
</tr>
<tr>
<td>EDU414</td>
<td>3</td>
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</tbody>
</table>

** Required for Early Childhood Education.

C. Practicum (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU202</td>
<td>3</td>
</tr>
<tr>
<td>EDU419</td>
<td>3</td>
</tr>
</tbody>
</table>

   And one Practice Teaching course:

<table>
<thead>
<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>EDU420</td>
<td>6</td>
</tr>
<tr>
<td>EDU421</td>
<td>6</td>
</tr>
<tr>
<td>EDU422</td>
<td>6</td>
</tr>
</tbody>
</table>

D. Subject Matter Area Electives (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU205</td>
<td>3</td>
</tr>
<tr>
<td>EDU213</td>
<td>3</td>
</tr>
</tbody>
</table>

   Choose another 6 credits from the following approved list

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU211</td>
<td>3</td>
</tr>
<tr>
<td>EDU212</td>
<td>3</td>
</tr>
<tr>
<td>EDU303</td>
<td>3</td>
</tr>
<tr>
<td>MUS301</td>
<td>3</td>
</tr>
<tr>
<td>COM337</td>
<td>3</td>
</tr>
<tr>
<td>ART333</td>
<td>3</td>
</tr>
</tbody>
</table>

For Elementary Education:

   - English Subject Matter:
     Choose 12 credits from the following approved list:

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<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG213</td>
<td>3</td>
</tr>
<tr>
<td>EDU303</td>
<td>3</td>
</tr>
<tr>
<td>ENG214</td>
<td>3</td>
</tr>
</tbody>
</table>

   Choose 3 more credits from:

<table>
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<th>Credits</th>
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<tbody>
<tr>
<td>ENG211</td>
<td>3</td>
</tr>
<tr>
<td>ENG212</td>
<td>3</td>
</tr>
<tr>
<td>ENG306</td>
<td>3</td>
</tr>
<tr>
<td>ENG336</td>
<td>3</td>
</tr>
</tbody>
</table>

   - Math & Science Subject Matter:
     Choose 12 credits from the following approved list:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU211</td>
<td>3</td>
</tr>
<tr>
<td>EDU212</td>
<td>3</td>
</tr>
</tbody>
</table>

   Choose 6 more credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU310</td>
<td>3</td>
</tr>
<tr>
<td>MTH207</td>
<td>3</td>
</tr>
<tr>
<td>NUT201</td>
<td>3</td>
</tr>
<tr>
<td>CHM201</td>
<td>3</td>
</tr>
<tr>
<td>BIO201</td>
<td>3</td>
</tr>
<tr>
<td>BIO202</td>
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</table>

III. Free Electives (7 credits)

   SUGGESTED THREE-YEAR STUDY PLAN:

   FIRST YEAR

   Fall Semester (15 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU201</td>
<td>3</td>
</tr>
<tr>
<td>ARA2... /3</td>
<td>3</td>
</tr>
<tr>
<td>ENG101</td>
<td>3</td>
</tr>
<tr>
<td>PSY201</td>
<td>3</td>
</tr>
</tbody>
</table>

   Spring Semester (15 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU331</td>
<td>3</td>
</tr>
<tr>
<td>EDU102</td>
<td>3</td>
</tr>
<tr>
<td>PED2...</td>
<td>1</td>
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</table>

   Summer Module

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 science course</td>
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</table>

   Total Year One           33
SECOND YEAR

**Fall Semester (14 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU321</td>
<td>Children’s Literature</td>
<td>3</td>
</tr>
<tr>
<td>EDU301</td>
<td>School Counseling</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>One Methods Course</td>
<td>3</td>
</tr>
<tr>
<td>PHL311</td>
<td>Philosophy of Religion</td>
<td>3</td>
</tr>
<tr>
<td>CSC201</td>
<td>Computer Applications</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Free elective</td>
<td>1</td>
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</tbody>
</table>

**Spring Semester (15 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY295</td>
<td>Theories of Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDU319</td>
<td>Teaching of Reading</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>One Subject Matter Course</td>
<td>3</td>
</tr>
<tr>
<td>ENG202</td>
<td>Sophomore Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Free elective</td>
<td>3</td>
</tr>
</tbody>
</table>

**Summer Module**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>One Elective Course</td>
<td>3</td>
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</table>

**Total Second Year**

<table>
<thead>
<tr>
<th>Credits</th>
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<tbody>
<tr>
<td>32</td>
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THIRD YEAR

**Fall Semester (15 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU202</td>
<td>Curriculum &amp; Observation</td>
<td>3</td>
</tr>
<tr>
<td>EDU419</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>One Methods Course</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>One Subject Matter Course</td>
<td>3</td>
</tr>
<tr>
<td>ENG203</td>
<td>Fundamentals of Oral</td>
<td>3</td>
</tr>
<tr>
<td>Communication</td>
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</tbody>
</table>

**Spring Semester (15 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU420-421</td>
<td>Practice Teaching</td>
<td>6</td>
</tr>
<tr>
<td>EDU499</td>
<td>Senior Study</td>
<td>3</td>
</tr>
<tr>
<td>EDU332</td>
<td>Educational Measurement</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>One Subject Matter Course</td>
<td>3</td>
</tr>
<tr>
<td>(EDU 205; EDU 213) or other subject matter area courses)</td>
<td></td>
<td></td>
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**Total Third Year**

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
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</table>

**LEARNING OUTCOME**

Students will be able to:

1. Identify and explain the different subcategories related to language, namely morphology, syntax, semantics, and pragmatics.
2. Distinguish the different methods and approaches to teaching Arabic and understand their impact on the curriculum.
3. Plan units, lessons, curricular materials, and activities for teaching Arabic.
4. Select and implement appropriate strategies for teaching the Arabic language.
5. Organize learning environments and implement theories of behavioural management to create positive classroom atmosphere.
6. Plan strategies and prepare tools for assessing language students’ achievement (formal as well as informal assessment).
7. Describe and distinguish the major grammatical functions related to language.
8. Analyze language and its social context and explain the linguistic differences encountered within a society.
9. Identify and summarize different reading approaches and strategies related to the Arabic language.
10. Explain and critique different topics related to the Arabic language.

**CURRICULUM REQUIREMENTS**

The BA in TAFL requires a total of 95 credits.

I. Liberal Arts Curriculum Requirements (34 credits)

II. TAFL Major Requirements - 33 credits

**Core Requirements (18 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY295</td>
<td>Theories of Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDU301</td>
<td>School Counseling</td>
<td>3</td>
</tr>
<tr>
<td>EDU319</td>
<td>Teaching Reading</td>
<td>3</td>
</tr>
<tr>
<td>EDU321</td>
<td>Children’s Literature</td>
<td>3</td>
</tr>
<tr>
<td>EDU419</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>EDU499</td>
<td>Senior Study</td>
<td>3</td>
</tr>
</tbody>
</table>

**Arabic Language & Literature Requirements**

MISSION

Under the umbrella of LAU’s Vision, the Mission of the BA in TAFL is to prepare professional teachers who are academically well grounded in both their subject matter, and pedagogy, and to enable experienced educators to update their knowledge and skills.
SUGGESTED THREE YEAR STUDY PLAN:

FIRST YEAR

Fall Semester (15 credits)
- EDU201 Fundamentals of Education 3
- ARA2... /3 3
- ENG101 English I 3
- PSY201 Introduction to Psychology 3
- 1 art course (ART; COM, etc.) 3

Spring Semester (15 credits)
- ARA311 Media in Lebanon 3
- 1 free elective 3
- PSY202 Child Psychology 3
- HLT201 Basic Health 1
- ETH201 Moral Reasoning 1
- ENG102 English I 3
- PED2xx Physical Education 1

Summer Module
- 1 course in Sciences & Quantitative Reasoning 3

Total Year One 33

SECOND YEAR

Fall Semester (14 credits)
- EDU321 Children’s Literature 3
- EDU301 School Counseling 3
- ARA321 Creative Writing 3
- PHL311 Philosophy of Religion 3
- CSC201 Computer Applications 1
- Free elective 1

Requirements for Teaching Diploma (21 credits)
- EDU201 Fundamentals of Education 3
- EDU202 Observation and Curriculum 3
- EDU311 Teaching of Arabic as a Foreign Language 3
- EDU331 Educational Technology 3
- EDU332 Educational Measurement 3
- EDU420-421 Practice Teaching 6

Free Electives (7 credits)

BA IN TEACHING ENGLISH AS A FOREIGN LANGUAGE (TEFL)

MISSION

Under the umbrella of LAU’s Vision, the Mission of the BA in TEFL is to prepare professional teachers who are academically well grounded in both their subject matter, and pedagogy, and to enable experienced educators to update their knowledge and skills.

LEARNING OUTCOME

Students will be able to:

1. Identify and explain the different subcategories related to language, namely morphology, syntax, semantics, and pragmatics.
2. Distinguish the different methods and approaches to teaching English and understand their impact on the curriculum.
3. Plan units, lessons, curricular materials, and activities for teaching English
4. Select and implement appropriate strategies for teaching the English language
5. Organize learning environments and implement theories of behavioral management to create positive classroom atmosphere.
6. Plan strategies and prepare tools for assessing language students’ achievement (formal as well as informal assessment)
7. Describe and distinguish the major grammatical functions related to language
8. Analyze language and its social context and explain the linguistic differences encountered within a society.
9. Identify and summarize different reading approaches and strategies related to the English language
10. Explain and critique different topics related to English language

CURRICULUM REQUIREMENTS
95 credits are required for a BA in TEFL

I. Liberal Arts Curriculum (34 credits)

II. TEFL Major Requirements - 33 credits

Core Requirements (18 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PSY295</td>
<td>Theories of Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDU301</td>
<td>School Counseling</td>
<td>3</td>
</tr>
<tr>
<td>EDU319</td>
<td>Teaching Reading</td>
<td>3</td>
</tr>
<tr>
<td>EDU321</td>
<td>Children’s Literature</td>
<td>3</td>
</tr>
<tr>
<td>EDU419</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>EDU499</td>
<td>Senior Study</td>
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English Language & Literature Requirements (15 credits)

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<tbody>
<tr>
<td>ENG213</td>
<td>Introduction to Language</td>
<td>3</td>
</tr>
<tr>
<td>ENG211</td>
<td>Literature I</td>
<td>3</td>
</tr>
<tr>
<td>ENG212</td>
<td>Literature II</td>
<td>3</td>
</tr>
<tr>
<td>ENG303</td>
<td>Language Arts</td>
<td>3</td>
</tr>
<tr>
<td>ENG306</td>
<td>Modern English Grammar</td>
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Requirements for Teaching Diploma (21 credits)

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EDU201</td>
<td>Fundamentals of Education</td>
<td>3</td>
</tr>
<tr>
<td>EDU202</td>
<td>Observation and Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>EDU312</td>
<td>Teaching of English as a Foreign Language</td>
<td>3</td>
</tr>
<tr>
<td>EDU331</td>
<td>Educational Technology</td>
<td>3</td>
</tr>
<tr>
<td>EDU332</td>
<td>Educational Measurement</td>
<td>3</td>
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<tr>
<td>EDU42x</td>
<td>Practice Teaching - TEFL</td>
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Free Electives (7 credits)

<table>
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<tr>
<th>Course</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 free elective</td>
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SUGGESTED THREE-YEAR STUDY PLAN:

FIRST YEAR

Fall Semester (15 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>EDU201</td>
<td>Fundamentals of Education</td>
<td>3</td>
</tr>
<tr>
<td>ARA2...</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>ENG101</td>
<td>English I</td>
<td>3</td>
</tr>
<tr>
<td>PSY201</td>
<td>Introduction to Psychology</td>
<td>3</td>
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<tr>
<td>1 art course (ART; COM, etc.)</td>
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Spring Semester (15 credits)

<table>
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<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU303</td>
<td>Language Arts</td>
<td>3</td>
</tr>
<tr>
<td>1 free elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PSY202</td>
<td>Child Psychology</td>
<td>3</td>
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<tr>
<td>HLT201</td>
<td>Basic Health</td>
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<tr>
<td>ETH201</td>
<td>Moral Reasoning</td>
<td>1</td>
</tr>
<tr>
<td>ENG102</td>
<td>English I</td>
<td>3</td>
</tr>
<tr>
<td>PED2xx</td>
<td>Physical Education</td>
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</table>

Summer Module

1 course in Sciences & Quantitative Reasoning | 3

Total Year One | 33

SECOND YEAR

Fall Semester (15 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU321</td>
<td>Children’s Literature</td>
<td>3</td>
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<td>EDU301</td>
<td>School Counseling</td>
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<tr>
<td>ENG213</td>
<td>Introduction to Language</td>
<td>3</td>
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<tr>
<td>PHL311</td>
<td>Philosophy of Religion</td>
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<tr>
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Spring Semester (14 credits)

<table>
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<th>Course</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PSY295</td>
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<td>EDU319</td>
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<tr>
<td>CSC201</td>
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<td>ENG202</td>
<td>Sophomore Rhetoric</td>
<td>3</td>
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<tr>
<td>ENG212</td>
<td>Literature II</td>
<td>3</td>
</tr>
<tr>
<td>1 free elective</td>
<td>1</td>
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Summer Module

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 free elective</td>
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Total Second Year | 32

THIRD YEAR

Fall Semester (15 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU306</td>
<td>Modern English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>EDU419</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>EDU202</td>
<td>Observation and Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>EDU312</td>
<td>Teaching of English as a Foreign Language</td>
<td>3</td>
</tr>
<tr>
<td>ENG203</td>
<td>Fundamentals of Oral Communication</td>
<td>3</td>
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</table>

Spring Semester (15 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU331</td>
<td>Educational Technology</td>
<td>3</td>
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<tr>
<td>EDU332</td>
<td>Educational Measurement</td>
<td>3</td>
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</tbody>
</table>
**TEACHING DIPLOMA**

**THE PROGRAM PROVIDES TWO OPTIONS:**
- **TD in Elementary Education**
- **TTD in teaching various subject matters at the Intermediate and Secondary Education**

**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 behavioural 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.

**CURRICULUM REQUIREMENTS**
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.**
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU201</td>
<td>Fundamentals of Education</td>
<td>3</td>
</tr>
<tr>
<td>EDU202</td>
<td>Observation and Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>EDU331</td>
<td>Educational Technology</td>
<td>3</td>
</tr>
<tr>
<td>EDU332</td>
<td>Educational Measurement</td>
<td>3</td>
</tr>
</tbody>
</table>

1 course from the Practice Teaching – Elementary:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU420</td>
<td>Practice Teaching, Early Childhood Education</td>
<td>6</td>
</tr>
<tr>
<td>EDU421</td>
<td>Practice Teaching, Elementary Education</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Arts &amp; Social Studies</td>
<td></td>
</tr>
<tr>
<td>EDU422</td>
<td>Practice Teaching, Elementary Math &amp; Science</td>
<td>6</td>
</tr>
</tbody>
</table>

...
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

1 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

MASTERS OF ARTS IN EDUCATION

The educational sector in Lebanon has undergone major changes since the inception of the new curriculum. These changes have raised the debate about the purpose and quality of education, overhauled the delivery modes and practices in the field, and created new positions in educational settings (school counselors, special educators, technology teachers, etc.). The need for qualified professionals has become greater than ever.

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 prepares 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/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.

CURRICULUM 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  3
EDU803  Methods of Educational Research  3
EDU806  Advanced Educational Psychology  3

One of the following two courses:

EDU805  Educational Technology  3
EDU872  Special Education***  3

***Required for Special Education emphasis
II. Electives (3 credits)

*One of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU812</td>
<td>Literacies across the Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>EDU814</td>
<td>Comparative Education</td>
<td>3</td>
</tr>
<tr>
<td>EDU873</td>
<td>Psycho educational Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDU874</td>
<td>Behavior Modification Techniques</td>
<td>3</td>
</tr>
<tr>
<td>EDU888</td>
<td>Topics in Education</td>
<td>3</td>
</tr>
<tr>
<td>EDU8—</td>
<td>Any non-required education course</td>
<td>3</td>
</tr>
</tbody>
</table>

III. Track courses depending on emphasis:

A. General Professional Development Track (12 credits)

Choose any three EDU courses at the graduate level (core, emphasis or elective) 9

B. Emphasis

Choose ONE emphasis from the following:

Specialist 1: Educational Management (9 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU832</td>
<td>Leading and Managing Schools/Educational Institutions</td>
<td>3</td>
</tr>
<tr>
<td>EDU833</td>
<td>Issues and Trends in Educational Management</td>
<td>3</td>
</tr>
<tr>
<td>EDU837</td>
<td>Practicum in Educational Management</td>
<td>3</td>
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</table>

Specialist 2: TESOL (9 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU852</td>
<td>Trends and Issues in TESOL</td>
<td>3</td>
</tr>
<tr>
<td>EDU853</td>
<td>Sociolinguistics and Social Context of Language</td>
<td>3</td>
</tr>
<tr>
<td>EDU857</td>
<td>Discourse and Materials Development</td>
<td>3</td>
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Specialist 3: Mathematics Education (9 credits)

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU822</td>
<td>Trends and Issues in Mathematics Education</td>
<td>3</td>
</tr>
<tr>
<td>EDU823</td>
<td>Technology in Mathematics Education</td>
<td>3</td>
</tr>
<tr>
<td>EDU825</td>
<td>Mathematical Language, Representations and Modeling</td>
<td>3</td>
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Specialist 4: Science Education (9 credits)

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU862</td>
<td>Trends and Issues in Science Education</td>
<td>3</td>
</tr>
<tr>
<td>EDU863</td>
<td>Technology in Science Education</td>
<td>3</td>
</tr>
<tr>
<td>EDU8—</td>
<td>Any non-required EDU course</td>
<td>3</td>
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Specialist 5: Early and Middle Childhood (9 credits)

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU842</td>
<td>Trends and Issues in Early and Middle Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>EDU843</td>
<td>Pedagogy in Early and Middle Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>EDU855</td>
<td>Multilingualism in Education</td>
<td>3</td>
</tr>
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</table>

Specialist 6: Special Education (9 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU875</td>
<td>Dyslexia and Reading Difficulties</td>
<td>3</td>
</tr>
<tr>
<td>EDU876</td>
<td>Teaching Students with LD in the Regular Classroom</td>
<td>3</td>
</tr>
<tr>
<td>EDU877</td>
<td>Special Education Practicum</td>
<td>3</td>
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</table>

Specialist 7: School Counseling (9 credits)*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU883</td>
<td>Counseling Theories and Techniques</td>
<td>3</td>
</tr>
<tr>
<td>EDU885</td>
<td>Counseling Children and Adolescents in School Setting</td>
<td>3</td>
</tr>
<tr>
<td>EDU887</td>
<td>Practicum in School Counseling</td>
<td>3</td>
</tr>
</tbody>
</table>

*Currently frozen

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)
EDUCATION (UNDERGRADUATE)

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 along with a field experience. Emphasis is on the strategies and techniques for observing and recording students’ behaviours in the classroom where the student teacher spends 60 semester hours.

EDU205 Safety and Health [3-0, 3 cr.]
This course is a review of the integrated holistic approach of health and safety practices recommended for childcare, including information on common diseases, health problems, nutrition, 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, 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 theory and practice of school counseling. Emphasis is on communication skills and basic intervention techniques that assist educators in dealing with a range of behavioural, emotional and vocational 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.

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.

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.
Department of Education

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 60 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.

EDU425 Practice Teaching–Secondary Math Education [1-2, 3 cr.]
This course involves 40 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.

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.

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.

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.

EDUCATION (GRADUATE)

EDU802 Curriculum Design [3-0, 3 cr.]
The aim of this course is to review the history of curriculum development, to analyze the current curricular 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 web-sites).

**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 thought, 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 behaviour, 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 web-sites, 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 examines 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.

*Currently frozen

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 behaviour characteristics of students with learning disabilities, and focuses on the current practices in identification, diagnosis and intervention programs, in the field of special education.

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 Behaviour Modification Techniques [3-0, 3 cr.]
This course focuses on the principles and applications of behaviour 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 behavioural 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 reading difficulties 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 evidence-based learning-teaching approaches, and materials that are effective in educating learning-disabled, and mildly developmentally delayed students in the areas of reading, spelling, writing and mathematics.

EDU877 Special Education Practicum [3-0, 3 cr.]
This course deals with the applied aspect of the Special Education emphasis. 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.

*Currently frozen

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.

*Currently frozen

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.

*Currently frozen

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 entails producing an original contribution in the students’ area of specialty, typically in the form of educational materials (educational kit, curriculum or sections of a curriculum, guidebooks, etc.) or a field study that is smaller in scale than a thesis.

EDU899 Thesis in Education [6 cr.]
This course entails producing an original contribution in the students’ specialty domain. It may be field research, qualitative or quantitative, descriptive or experimental, case study, document analysis, or action research.
Department of Humanities

CHAIRPERSONS
Behmardi, Vahid - Beirut
Malik, Habib - Byblos

PROFESSORS
Aghacy, Samira
Zeitouni, Latif

ASSOCIATE PROFESSORS
Abdo, Antoine
Aercke, Kristiaan
Bacha, Nahla
Behmardi, Vahid
Ghosn, Irma-Kaarina
Malik, Habib

ASSISTANT PROFESSORS
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Badran, Dani
Balaa, Luma
Daccache El-Amyouni, Nidale
Diab, Nuwar
Diab, Rula
Khachan, Victor
Khuri, Richard
Marroum, Marianne
Mouawad, Ray
Moujaes, Samar
Saab, Nada

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Haraty, Nabelah
Vassilenko, Larissa

INSTRUCTORS
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Acr, Usama
Assaf, Nadra
Azzi, Reine
Chatila, Evelyn
Dakakni, Deema
Dasouki, Suhail
Habre, Paula
Hage, Nermine
Hodeib-Eido, Dana
Ibrahim, Raghida
Mohsen, Nadim
Makarem, Wassilia
Nasrallah, Therese
Pempedjian, Giselle
Prescott-Decie, Brian

Rahme, Suraya
Sadaka, George
Sbeiti, Hanan
Shahine, Mona
Shami, Samira
Yusuf Karameh, Amy

ASSISTANT INSTRUCTOR
Salman, Nabil

DEGREES OFFERED
• Bachelor of Arts in English
• Bachelor of Arts in History
• Bachelor of Arts in Philosophy
• Masters of Arts in Comparative Literature
• Minor in Arabic Language and Literature
• Minor in English

FACILITIES
The Department houses the following facilities:
English Learning Laboratory; Writing Center.
The B.A. in English 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.

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 Studies 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 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.

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.

CURRICULUM REQUIREMENTS
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. The B.A. in English requires 92 credits.

1. Liberal Arts Curriculum Requirements (34 credits)
2. Major Core Requirements (18 credits)
3. 1. Literature Emphasis Requirements (24 credits)
   Choose 6-9 credits from:
   - ENG323 Renaissance Drama
   - ENG324 Medieval Literature
   - ENG325 Renaissance Poetry
   - ENG326 Restoration and Neoclassical Literature
   - ENG328 Early Novel

   Choose 3 credits from:
   - ENG336 Romantic and Victorian Poetry
   - ENG339 Nineteenth-Century British Novel

   Choose 6-9 credits from:
   - ENG342 Modernism and Beyond
   - ENG345 Twentieth-Century British Novel
   - ENG346 Contemporary Culture
   - ENG348 Postcolonial Anglophone Literatures
   - ENG487 Topics in Drama and Theater
   - ENG479 Topics in Literature and Culture

   Choose 3 credits from:
   - ENG351 Early American Literature
   - ENG352 Twentieth-Century American Novel

   Choose 3 credits from:
   - ENG325 Renaissance Poetry
   - ENG336 Romantic and Victorian Poetry
   - ENG342 Modernism and Beyond

3.2. Language Emphasis Requirements (24 credits)
- ENG213 Introduction to Language
- ENG214 Grammar
- ENG306 Introduction to Phonetics & Phonology
- ENG307 Introduction to Psycholinguistics
- ENG310 Sociolinguistics
- ENG308 Semantics and Pragmatics
- ENG473 Topics in English Language
- Literature courses electives other than ENG211/212

Suggested Electives (16 credits)

SUGGESTED THREE YEAR STUDY PLAN: B.A. ENGLISH LITERATURE
Year I - 32 credits
Fall
- ENG202 Sophomore Rhetoric
- ENG319 History of the English Language
- ENG323 Renaissance Drama
- ENG366 Creative Writing
- HLT201 Basic Health
- COM229 History and Theory of Film
Total 16cr
Spring
- ENG203 Oral Communication
- ENG303 Literary Linguistics
- ENG342 Modernism and Beyond
- ENG372 Comparative and World Literature
- ETH201 Moral Reasoning
- COM325 Feature & Magazine Writing
Total 16cr

Year II - 31 credits
Fall
- ENG325 Early American Literature
- ENG354 Theories of Literature & Culture
- ARA201 Appreciation of Arabic Literature
- ENG328 The Early Novel
Total 15cr
Spring
- ENG346 Contemporary Culture
- PHL210 Critical and Creative Thinking
- BIO201 General Biology I
- ART431 Modern Art
- REL412 History of Religious Thought in the M. East
Total 16cr

Suggested Electives (16 credits)
### Year III - 29 credits

**Fall**

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<td>COM 326</td>
<td>Script Writing</td>
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<td>Representations of Women in Arts and Media</td>
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<td>SOC 488</td>
<td>Topics in Sociology</td>
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**Total Program**: 92cr

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### SUGGESTED THREE YEAR STUDY PLAN: BA ENGLISH LANGUAGE

#### Year I - 32 credits

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<td>ENG 214</td>
<td>Grammar</td>
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<td>ENG 319</td>
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**Spring**

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<td>ENG 303</td>
<td>Literary Linguistics</td>
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<tr>
<td>ENG 306</td>
<td>Intro to Phonetics &amp; Phonology</td>
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<tr>
<td>ENG 372</td>
<td>Comparative &amp; World Literatures</td>
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<tr>
<td>COM 210</td>
<td>Communication Media &amp; Society</td>
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<tr>
<td>ETH 201</td>
<td>Moral Reasoning</td>
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**Year II - 31 credits**

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<tr>
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<td>Early Novel</td>
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<tr>
<td>ENG 307</td>
<td>Intro to Psycholinguistics</td>
<td>3</td>
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<tr>
<td>ENG 354</td>
<td>Theories of Literature &amp; Culture</td>
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<td>ARA 201</td>
<td>Appreciation of Arabic Literature</td>
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<td>HST 201</td>
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**Spring**

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ENG 308</td>
<td>Semantics &amp; Pragmatics</td>
<td>3</td>
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<tr>
<td>BIO 201</td>
<td>General Biology I</td>
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<tr>
<td>COM 325</td>
<td>Feature &amp; Magazine Writing</td>
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</tr>
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<td>PHL 210</td>
<td>Critical &amp; Creative Thinking</td>
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<td>WOS 412</td>
<td>Representations of Women in Arts &amp; Media</td>
<td>3</td>
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<td><strong>Total</strong></td>
<td></td>
<td><strong>16cr</strong></td>
</tr>
</tbody>
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### BACHELOR OF ARTS (B.A.) IN HISTORY

**MISSION**

The History Program at LAU aims to instill in students an in-depth appreciation of the past by exposing them to a global focus on both Eastern and Western civilizations through a consideration of the complex interactions across cultures over designated spans of time—interactions that collectively constitute the sum total of the human experience. Learning about the past has the dual purpose of helping students to acquaint themselves with the accumulated wisdom of the ages, while at the same time allowing them to discern the errors of eras gone by in order to avoid repeating them. A proper and systematic grounding in history therefore becomes the surest way to form character, cultivate perspective, illuminate context, and refine an understanding of what it means to belong to the human family.

**EDUCATIONAL OBJECTIVES:**

1. To develop in students a healthy intellectual curiosity about other cultures as well as their own and how these have fared over the centuries.
2. To offer students a rich and wide selection of interpenetrating historical narratives with a view to having them discover those thematic threads with which they can most closely identify in order to help reveal to them who they are.
3. To nurture in students the love of reading and thinking critically about the past so as to better understand the present and plan intelligently for the future.

4. To provide students with a sufficiently solid cultural background to enable them to pursue productive careers in any field by making it possible for them to refer with ease to meaningful and relevant precedents in order to uncover latent yet at times subtle connections between such precedents and complex current situations.

LEARNING OUTCOMES:

These are to be attained by students at the end of their years of undergraduate training and measured through a combination of both oral and written exercises, independent supervised research and in-class examinations, and substantive discussions with peers and instructors. They include:

1. A comparative perspective on leading historical events and personalities.

2. An acquaintance with the principal themes and arguments that have informed the weighty historical disputes and conflicts.

3. The ability to draw perceptive analogies between what happened in the past and what is occurring today, or what might unfold tomorrow.

4. Distinguishing periods of gradual and steady progress from others of stagnation, or even occasional regression.

5. Perfecting the skill to converse maturely and influentially about matters of historical substance that continue to have a decisive bearing on our lives in the present.

6. Appreciating the intricate and cumulative nature of positive human experience over time in order to fathom the factors and decipher the purposes of change in the political, social, cultural, intellectual, and personal spheres of humankind’s grand overall story.

CURRICULUM REQUIREMENTS

The B.A. in History requires 92 credits, of which 34 are University Course Requirements, 42 are History courses and 16 are free electives.

The History B.A. program features 9 distinct areas of course work. Within each area there are required courses for those majoring in History as well as other courses that can be taken either as electives or as part of the Liberal Arts Core. The 9 areas are the following:

1. HST205 Historical Tools (required, 3 Credits):

2. Ancient World History (one course required, 3 Credits):

3. History of Lebanon (HST231 required, 3 Credits):

4. Arab and Middle Eastern History: (two courses required including either HST240 or HST241, 6 Credits):

5. European History (any two courses required, 6 Credits)

6. World History (any three courses required, 9 Credits): 

7. Thematic History (any two courses required, 6 Credits): 

8. HST401 Special Topics in History (one topics course required, 3 Credits)

9. HST499 Senior Study (required, 3 Credits)

LEARNING OUTCOMES:

These are to be attained by students at the end of their years of undergraduate training and measured through a combination of both oral and written exercises, independent supervised research and in-class examinations, and substantive discussions with peers and instructors. They include:

1. A comparative perspective on leading historical events and personalities.

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8. HST401 Special Topics in History (one topics course required, 3 Credits)

9. HST499 Senior Study (required, 3 Credits).
SUGGESTED THREE-YEAR STUDY PLAN:
Year I - 32 credits

Fall
- HST205 Historical Tools (prerequisite for all history courses) 3
- HST221 Greece and Rome (Required) 3
- ENG202 Sophomore Rhetoric 3
- PHL201 Ancient Philosophy 3
- LAC Arts 3
- HLT201 Basic Health 1
Total 16cr

Spring
- HST231 Lebanon Imarah to 1975-90 War (Required) 3
- HST240 History of the Arab Peoples (Required) 3
- ENG203 Fundamentals of Oral Communication 3
- ARA201 Appreciation of Arabic Literature 3
- LAC Social Science 3
- CSC201 Computer Applications 1
Total 16cr

Year II - 32 credits

Fall
- HST242 Europe and the Middle East 3
- HST302 Medieval Europe (Required) 3
- HST330 History of Byzantium 3
- LAC Literature 3
- LAC Science 3
- PED101 Physical Education elective 1
Total 16cr

Spring
- HST331 History of Russia 3
- HST303 Early Modern Europe 3
- HST340 Topics in History of Ideas 3
- LAC Humanities 3
- ETH 201 Moral Reasoning 1
- Free Elective 3
Total 16cr

Year III - 28 credits

Fall
- HST499 Senior Study 3
- HST342 Topics in History of Religion 3
- HST334 History of North America 3
- LAC Humanities 3
- Free Elective 3
Total 15cr

Spring
- HST408 Comparative Nationalisms 3
- Free Elective 3
- Free Elective 3
- Free Elective 3
- Free Elective 1
Total 13cr

Total Program 92cr

MISSION
The philosophy program at LAU intends to offer a course of study that will produce outstanding graduates prepared to approach life’s challenges, interpersonally and professionally, with the greatest possible variety of supple and far reaching frameworks for reflection, thought, decision, and action.

EDUCATIONAL OBJECTIVES
The purpose of the Bachelor of Arts in Philosophy program is to

1. Produce graduates who have: superior critical and analytical capacities; the ability to read and understand some of the most difficult and profound texts ever written; excellent writing abilities; and courageous proclivities for truly independent thinking.

2. Not merely to help students acquire a particular set of skills (although this will be one outcome of the sustained practice of closely reading and thinking about extremely difficult texts, and attempting to write clearly, penetratively, and persuasively about them), but also to foster an open-minded, tolerant, and receptive outlook on what it is to be human.

3. Help students to develop the ability to think clearly and reflect deeply about their individual lives, their communities, the world around them, and what it all means. The emergence of a substantial number of such individuals could have a meaningful and highly constructive impact on the relevant cultural, social, and political surroundings.

4. Prepare our students to enter the job market with corporations and other large international organizations who have been clamoring for better educated and more cultured employees capable of thinking for themselves, strong in their communication and comprehension skills. Experience has taught those employers that majors in fields such as philosophy, English, and history that such individuals have repeatedly excelled at their jobs in banking, finance, law, economics, and international relations.
LEARNING OUTCOMES
Graduates in the Bachelor of Arts in Philosophy will:

1. Become critical thinkers with a strong moral awareness.
2. Acquire broad knowledge of ancient and contemporary texts.
3. Acquire the dispositions and skills required of an active and responsible citizenry.
4. Acquire adaptive abilities particularly suited to a rapidly changing job market.
5. Acquire broad insight into the human condition.

CURRICULUM REQUIREMENTS
The B.A. in Philosophy requires 92 credits, of which 34 are University Course Requirements, 42 are Philosophy courses and 16 are free electives.

The Philosophy course requirement consists of 7 areas of course work, distributed as follows:

1. Logic Requirement (6 Credits):
   - PHL 210 Critical and Creative Thinking
   - PHL 211 Symbolic Logic

2. History of Philosophy Requirement (12 Credits):
   - PHL201 Ancient Philosophy: From the pre-Socratics to the Epicureans and The Stoics
   - PHL202 Medieval Philosophy: From Plotinus to Ockham
   - PHL203 Early Modern Philosophy: From Montaigne to Kant
   - PHL204 Modern Philosophy: From Hegel to Heidegger and/or Frege to Wittgenstein

3. Twelve core courses in philosophy (Any three of the 12 are required, 9 Credits):
   - PHL301 Ethics
   - PHL302 Theory of Knowledge
   - PHL303 Metaphysics
   - PHL 311 Philosophy of Religion
   - PHL321 Philosophy of Art
   - PHL322 Philosophy in Literature and Film
   - PHL323 Philosophy of History
   - PHL324 Philosophy of Science
   - PHL325 Philosophy of Mind
   - PHL326 Social and Political Philosophy
   - PHL327 Philosophy and Mythology
   - PHL328 Arab and Islamic Philosophy

4. PHL350 Courses on the individual philosophers (Any two required, 6 Credits)

5. Special Topics (Any two courses required, 6 Credits):

6. PHL499 Senior Study (Required, 3 Credits)

SUGGESTED THREE-YEAR STUDY PLAN:

Year I - 32 credits

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Year II - 32 credits

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Year III - 27 credits

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<th>Semester</th>
<th>Courses</th>
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MINOR IN ARABIC LANGUAGE AND LITERATURE

A Minor in Arabic Language and Literature complements our students’ major study in fields such as journalism and education. It gives them an extra edge in the hiring process and enhances their career opportunities. It also proves crucial to students who wish to pursue careers related to translation. Students who major in Communication Arts and focus on areas such as Film, Drama will find that a Minor in Arabic Language and Literature offers them an excellent interdisciplinary education and training, and will prepare them to compete for the best employment opportunities.

MISSION
The mission of the proposed program is to offer a quality Arabic Program that will appeal to a range of student interests and attract graduate students with a strong liberal arts background who hope to enhance their role as well-rounded individuals.

LEARNING OBJECTIVES
The objective of the Minor in Arabic Language and Literature is to equip students with a solid background in Arabic language and literature. This Minor includes language, poetry and prose in modern and ancient Arabic literature. This Minor can be taken by students from any major.

LEARNING OUTCOMES
Readings in primary and secondary sources, oral participation and written assignments will enable students to:

1. Acquire a good level of mastery of the Arabic language.
2. Acquire knowledge of the sequential development of Arabic literature and become acquainted with major trends of Arabic literary production in both medieval and modern times.
3. Receive intensive training in the analysis of literary texts.
4. Demonstrate ability to write and express the outcome of their learning in a scholarly manner.

CURRICULUM REQUIREMENTS
Six courses (18 credits) are required for the Minor in Arabic Language and Literature.

Three courses are mandatory: ARA 301, ARA 332, and ARA 341.

The three remaining courses can be selected from: ARA 201, ARA 302, ARA 322, ARA 333, and ARA 342.

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td>ARA 201</td>
<td>ARA 201 Appreciation of Arabic Literature</td>
</tr>
<tr>
<td>ARA 302</td>
<td>ARA 302 Arabic Rhetoric</td>
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<tr>
<td>ARA 321</td>
<td>ARA 321 Creative Writing</td>
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<tr>
<td>ARA 322</td>
<td>ARA 322 Principles of Translation</td>
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<tr>
<td>ARA 341</td>
<td>ARA 342 Arabic Drama</td>
</tr>
<tr>
<td>ARA 333</td>
<td>ARA 333 New Trends in Modern Arabic Literature</td>
</tr>
<tr>
<td>ARA 342</td>
<td>ARA 341 Modern Arabic Novel and Short Story</td>
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</tbody>
</table>

MINOR IN ENGLISH

MISSION
The Minor in English supports the Lebanese American University’s core mission, vision and values by: a commitment to education with a strong liberal arts foundation and a continuous improvement in the overall quality of teaching, research, writing and educational service. The intent of the Program is thus to advance an academic understanding of English literature and language and address its complexities. It should be noted that many students over the years have expressed interest in language and literature but do not necessarily want to pursue a B.A. degree in it.

Specifically, the minor in English would offer our students:

1. more opportunity and a more solid and rounded background for their future careers,
2. a program that would better prepare the already enrolled B.A. English students as well as other graduates from other majors to pursue a graduate degree in English at LAU if they may choose,
3. a fuller liberal arts background fulfilling the mission of the university,
4. A program that would allow students who are interested in English language and literature and who are following other majors to take another degree.
5. An interdisciplinary degree which is in line with many US accredited universities.
6. A minor in either language or literature to the students enrolled in the current B.A. Language/Literature Program in which they are following one track.
7. The opportunity to best use their free electives and LAC requirements to obtain their degrees in business, education, social sciences, engineering, architecture, design, computer or the natural and medical sciences business, with a minor in English. In this context, it is worthwhile to mention the following which, in the proposers’ views, is applicable to other majors.

LEARNING OBJECTIVES

The Minor
1. Prepares the students for the job market by adding to their majors through a Minor in English.
2. Enhances the literary and linguistic knowledge of students who are not majoring in English.
3. Develops students’ research and writing skills through active learning and the promotion of critical thinking.
4. Prepares students who are not majoring in English to join the MA program in English at LAU after completing the BA.
5. Expands outreach and engagement by encouraging faculty and students to contribute to the community at large.

LEARNING OUTCOMES

Graduates in a Minor 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 further develop their research methods.
4. Reflect upon the different aspects of today’s global issues in a literary and linguistic framework.

CURRICULUM REQUIREMENTS

A Minor in English seeks to provide quality education to our students and enrich their knowledge of English and American Literature and Language. This is done through a selection of courses already available in the English Department. These courses underscore a number of pedagogical and analytical skills: familiarity with major literary works and their social and cultural context; critical analysis of major literary work; and improving their analytical and writing skills. A minor in English prepares the students for a variety of professions as well gives them the opportunity to have a prerequisite education that qualifies them to pursue a postgraduate degree in English literature or linguistics.

For a Minor in English, students must choose 18 credits of the following courses:

<table>
<thead>
<tr>
<th>Minor Core Requirements (9 credits):</th>
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</thead>
<tbody>
<tr>
<td>ENG 351</td>
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<tr>
<td>ENG 213</td>
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<tr>
<td>ENG 319</td>
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</tbody>
</table>

The rationale for the three courses (9 credits) minor core requirements is to give the student a wide perspective on what the English language is and how it evolved, along with a general view of American Literature which will give students insight and awareness of the language and literature so that they may better develop their speaking, listening, reading and writing skills.

Minor Elective Requirements (9 credits):
Students may select the 9 credits from literature or language or either.

English 102 (II) is a pre-requisite for all courses. It is recommended that the core courses be taken first, but students may take 18 credits of courses toward the minor in any order.

<table>
<thead>
<tr>
<th>Literature</th>
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<tr>
<td>ENG 325</td>
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<td>ENG 326</td>
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<td>ENG 336</td>
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<td>ENG 339</td>
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<td>ENG 474</td>
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<tr>
<th>Language</th>
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<tbody>
<tr>
<td>ENG 214</td>
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<td>ENG 308</td>
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<td>ENG 310</td>
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<td>ENG 307</td>
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<td>ENG 473</td>
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</table>
The rationale to give a choice of three courses (9 credits) of minor core requirements is to allow students to choose where their interests lie, either in the language per se or in literature or a mixture of both. The literature and language courses are those which already exist in the B.A. English Program and are good representations of the course offerings. The selection of courses has been made in order to offer the student a comprehensive overview of what can be called a ‘miniature B.A. English degree’.

**EDUCATIONAL OBJECTIVES**
The purpose of the Graduate Program in Comparative Literature is to:

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 specialization in methodology, theory, periods, themes and literary genres that constitute the framework within which they 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 Lebanon and 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 literary translators, or work as specialists 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 the Ph.D. level.

**MISSION**
The Mission of the Graduate Program in Comparative Literature is to teach, train, and conduct research in literature and transcultural studies, with special attention to Lebanon and the Middle East. 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.
CURRICULUM REQUIREMENTS

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 at least one.
- 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.

Graduate students in Comparative Literature must complete 30 credit hours in three areas:

A. 18 credits of core courses:

<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>CLT803</td>
<td>Literary Theory I</td>
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<td>CLT804</td>
<td>Literary Theory II</td>
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<tr>
<td>CLT820</td>
<td>Period</td>
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<tr>
<td>CLT830</td>
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<tr>
<td>CLT840</td>
<td>Genre</td>
<td>3</td>
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</table>

B. 6 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.).

C. A written Preliminary Exam, and a 6-credit Master’s Thesis, CLT 899

The Preliminary Exam in Comparative Literature tests the student’s capacity to deal with specific topics rather than address very general areas. A reading list that consists of 5-10 texts prepared by the examining committee in consultation with the student takes into consideration the field/s of research related to the thesis topic for each student. The Preliminary Exam takes the duration of three hours. Each member of the Examining Committee will receive a copy of the answering sheets, and will correct the exam independently. The result, which is either a Pass or Fail, is communicated to the Director of the Program. If the three examiners give a Pass to the examinee, the student will be notified about the result. If one of the examiners fails the student, the Director will call for a meeting where the examiners decided on whether the student should pass or fail. Students who fail are given a second chance within a month from the date of the first exam. Those who fail in the second comprehensive preliminary exam will be suspended from the Program. The students are expected to pass the Preliminary Exam prior to commence working on their thesis.

ARABIC STUDIES

ARA101 Essay Reading and writing I
[3-0, 3 cr.]
This course concentrates on essay reading and writing. Through selected readings that represent different types of essays, students will receive training on literary analysis and essay writing skills. This course also includes a review of essential grammatical rules of the Arabic language.

ARA102 Essay Reading and writing II
[3-0, 3 cr.]
This course, being complementary to ARA 101, focuses on the study of the development of the “Essay” as a literary genre. It focuses on articles on literary criticism, newspaper articles, and articles that deal with autobiography, memoirs and travel. It also tackles the Western influence on the evolution of essay writing in Arabic. In this course, students receive training on skills of writing articles.

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.
Department of Humanities

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 Abbassid 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.

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 unwavelling 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.

CHINESE

CHN 201 Beginning Chinese [3-0, 3 cr.]
This course is designed for students with no previous knowledge of Mandarin Chinese, the official language of China. It aims at providing them with spoken and written knowledge of the language at the basic survival level. At the listening/speaking level, emphasis is placed on the phonological subtleties of intonation in Chinese and how these affect meaning. At the reading/writing level, both a phonological based system (Pinyin) and a logographic system will be simultaneously adopted. An interactive, communicative approach to teaching will be used in order for students to actively experience the language in as authentic and functional a context as possible.
CULTURAL STUDIES

CST101 Civilizations [3-0, 3 cr.]
This course provides a preliminary survey of the origins of ancient cultures ending up with the Greek and Roman civilizations, by emphasis on Mesopotamia, Egypt, Phoenicia, and India. The survey includes a study of the birth of civilization that comes along with the development of human tools that mark the conquest over the powers of nature. Cultural texts, artifacts, rituals, and other practices (medicine, hunting, clan grouping, loyalty to leaders, etc.) will be explored as contributing to the formation of a civil identity specific to these different cultures and peoples.

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.

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.

CST203 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.

ENGLISH LANGUAGE AND LITERATURE

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.

ENG009 Remedial English II [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, reading, and writing skills. The course emphasizes academic style and task-based work.

Corequisite: INF201 Learning Resources Techniques.

Prerequisite: EEE score 500 - 549 or its equivalent.
Department of Humanities

ENG101 English I [3-0, 3 cr.]
This course is designed to reinforce 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.
Prerequisites: ENG009, or EEE score 500 - 549, or its equivalent.

ENG102 English II [3-0, 0 cr.]
This course is 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 organise their findings, to develop their manuscript, and to cite their 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 critical analysis, evaluation, formulation, and the presentation of verbal and written opinions based on the best possible evidence. It also 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.

ENG 211 Literature I [3-0, 3 cr.]
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: Greek mythology, Homer, Sappho, Virgil, Petronius, Dante, Rabelais, Anna Bijn.

ENG 212 Literature II [3-0, 3 cr.]
Offers a critical study of Western literature from the seventeenth century through the twentieth century as a continuation of ENG 211. Topics and writers may include: Montaigne, Cervantes, Baroque poetry, Molière, Goethe, German romanticism, Chekhov, Kafka.

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.
Department of Humanities

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, variational, 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 examines 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 literature 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 examines 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.

ENG328 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.

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, and 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 particular 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.

ENG473 Topics in English Language [3-0, 3 cr.]
This course deals with an 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.

Prerequisites: ENG102 English II, Senior standing, or the consent of the Instructor.

ENG479 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.

Prerequisites: 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 dramaturgical, and theatrical, approaches to specified topics, or theater trends or schools (Modern Drama, Postmodernism, Documentary Drama, Gender and Theater, Popular Theater, etc...). The Course may be repeated if topics differ. Students may take it more than once.
Prerequisites: 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.
Prerequisites: ENG102 English II, Senior Standing, and the consent of the Instructor.

ETHICS
ETH201 Moral Reasoning [1-0, 1cr.]
This course explores ways to approach moral decisions individuals encounter in their daily life, with a focus on critical thinking and the importance of personal integrity. The course attempts to promote productive dialogue, tolerance for diverse points of view on ethical issues, and skills of responsible citizenship.

GERMAN
GER201 Beginning German [3-0, 3 cr.]
A beginning course in standard German designed for students who have no previous knowledge of the language. The course aims at basic proficiency in the language skills: listening, speaking, reading and writing focusing on the use of the German sound system, acquisition of vocabulary and developing standard grammatical structures, reading of short texts and writing at the paragraph level. Emphasis is placed on students’ use of the language in authentic situations of everyday life cultivating an appreciation for the richness and diversity of the culture of the peoples. A communicative content task-based approach is used and opportunities are given to participate in activities and events.

GER 202 Beginning German II [3-0, 3cr.]
For students with prior knowledge of German grammatical structures, some comprehension and speaking skills. The aim of this course is to firstly consolidate the knowledge of German and then extend it through written texts, audio-visual material, role-play and lots of speaking practice focusing on everyday situation. Students will be able to write short, simple letters. Topics covered: orientation in the city, sights and attractions in German-speaking cities, talking about what happened in the past. A communicative content task-based approach is used and opportunities are given to participate in activities and events.

HISTORY
HST101 20th Century History of Lebanon and the Region [3-0, 3cr.]
This course examines the situation of Lebanon during and in the aftermath of World War I, the proclamation of Greater Lebanon after the war, and the French mandate until the independence of the country in 1943. The course also encompasses the modern history of Lebanon in relation with the history of its neighboring Arab countries: Egypt, Syria, Palestine, Iraq and Saudi Arabia.

HST205 Historical Tools (required) [3 – 0]
This course introduces the discipline of history and its centrality for the Humanities. It acquaints the students with different ways of reading, writing, and interpreting historical texts and documents. It also offers a broad overview of historical methodologies and informs students about the rudiments of historiography. Through lectures, close readings of texts (both primary and secondary), and written exercises the course emphasizes the proper scholarly approaches to historical research and writing.

HST220 The Ancient World, Pre-History to Pericles [3 - 0]
Provides an overview of pre-historical human existence during the bronze and iron ages (2000-1000 BC) mainly around the major river systems of the ancient world: Pharaonic Egypt and the Nile; Mesopotamia and the Tigris and Euphrates; ancient settlements on the Indian subcontinent and the Indus river valley; and comparable early human settlements in other parts of the ancient world. Sumerian, Babylonian, Egyptian, Phoenician, Semitic, and other peoples of the ancient Near and Middle
East will be the main focus of investigation, as will the earliest Greek settlements throughout the islands of the Aegean Sea and western Asia Minor. Such events as the Trojan War and the destruction of Troy c. 1193 BC and the Persian Wars (490-449 BC) will also be covered. The course culminates with an introduction to the rise of the ancient Greek city states and concentrates on one of Hellenism’s high civilizational achievements: Pericles’ Athens.

HST221 The Ancient World, Greece and Rome [3 – 0]
An introduction to the great Western civilizations of classical antiquity that centered around Greece and Rome. The course roughly covers the period from the foundation of Rome in 753 BC to the sack of the city by the Visigothic king Alaric in 410 AD. Landmark events and developments include: the Peloponnesian War (431-404 BC); Alexander the Great’s conquests (356-323 BC); the Punic Wars (264-146 BC); the challenge of Hannibal of Carthage (246-182 BC); the rise of Christianity; the Roman invasion of Britain 43 AD and Hadrian’s Wall (122-127 AD); and the conversion of Constantine the Great after 313 AD and the Edict of Milan. Texts from Cicero, Virgil, Horace, Lucretius, Ovid, Seneca, Marcus Aurelius, Plotinus, and others will be analyzed in conjunction with the unfolding historical narrative. The Harvard Loeb Classical Series will be the main repository of primary sources in English translation for this course. The interplay between the highpoints of imperial achievements and the factors of inevitable decline will be emphasized.

HST230 History of Lebanon, from Antelias Man to the Ottoman Conquest (1516) [3 – 0]
This course surveys the history of Lebanon from prehistoric times through the Phoenician and Roman periods and on to the Middle Ages and the Crusades, ending with the Ottoman conquest at Marj Dabiq in 1516. The emphasis is on those features that define the peoples of Mount Lebanon and the Mediterranean coastal settlements throughout this span of time, and how the foundations for the later emergence of a distinct Lebanese polity and culture were laid. Among the themes explored by the course are the pre-Christian era, the coming of Christianity, the immigration into the Lebanese mountains of a variety of peoples including the early Maronites, the coming of Islam, the arrival of the Druze, rivalries and precarious balances, external factors, and the economic viability or lack thereof of the mountains.

HST231 History of Lebanon, from the Imarah to the 1975-1990 War[3 – 0]
The course covers the rise of the Imarah and the pivotal figures of Fakhri Ed-Deen and Emir Bachir, Lebanese—specifically Maronite—relations with France and the Vatican, Ottoman Mount Lebanon through the early modern period up to the 18th century, the impact of the Tanzimat on the delicate balance in the mountains, the 1860 massacres, the rise of the Mutassarriffiya, Lebanon during the First World War, Lebanon under the French Mandate, independence in 1943, the National Pact, the 1958 events, the years of prosperity, the seeds of eventual collapse, the outbreak of war in 1975 ending with the November 1989 Ta’if agreement. The approach is one that weaves historical developments and raw events with an analysis of their significance as regards the evolution of the Lebanese polity and identity, the intricate relations between internal factions and communities and outside powers both near and far, and the impact on Lebanon of the wider Arab region’s problems and conflicts and ambitions.

HST240 History of the Arab Peoples [3 – 0]
The focus of this course is on the Arabs as a people and their achievements throughout history. From their Semitic origins in Arabia to their many successive sub-variations throughout the Middle East the course traces the development of the Arabs and their civilization into modern times. The rise of Islam and the revelation of the Koran in the Arabic language to an Arab Prophet made the Arabs special in their own eyes and in those of all Muslims. Whether it is the life of the courts and cities under the Umayyads, the Abbasids, and in Arab Spain, or the everyday existence of the countryside and the ordinary people, the course will attempt to provide students with as rich a portrait of Arab culture and history as possible. Critiques such as those of Ibn Khaldun and some of the later writers of the Nahda period starting in the second half of the 19th century will be germane to the presentation. How the Arabs interacted with Turks, Persians, and Europeans, and how these outsiders perceived the Arabs, will be central to the course’s thematic approach.

HST241 History of Islam in the Middle East [3 – 0]
The course begins with an introduction about the Jahiliyya period and the dawn of Islam in the 7th century AD and proceeds as far as a convenient cutoff point in the 20th century to be determined by the instructor. Covered in
this historical survey of Middle Eastern Islam are the rise of the new creed in Arabia, the life and message of the Prophet Mohammad, the first four wise Caliphs, the Sunni-Shiite split, schools of Islamic jurisprudence, shari'a, the five pillars, the Umayyad Empire, the early Islamic conquests, the Arabs in Spain, the Abbasid Empire, the flowering of Islamic culture in the Middle Ages, Ayubids, Fatimids, Seljuks, the Crusades, Saladin, the Mongol invasion, the conversion of Iran to Shiism, the emergence of the Ottomans, Wahhabism, Abdu and Afghani, Qutub and Banna, and Khomeini and Bin Laden. Topics such as the historical evolution of the concept of Jihad, the two abodes dualism, dhimmitude, and others will be explored from a historical perspective. The purpose of the course, in addition to acquainting students with the history of one of the world's major religious faiths, is to examine Islam's development as both a creed and a complete way of life, and to assess the challenges it posed to the non-Muslim world as well as how it was in turn challenged by its surroundings.

HST242 Europe and the Middle East (1798-1956) [3 – 0]
This course aims to provide the students with an overview of European-Middle Eastern relations during the 19th and first half of the 20th centuries—essentially from Napoleon’s invasion of Egypt in 1798 to the 1952 officers’ revolution in Egypt led by Nasser. It deals mainly with the political, diplomatic, and military events and developments of the period as well as the changing socio-economic, cultural, and intellectual trends and attitudes. The objective is to acquaint the students with the highlights of the complex and often stormy interactions between the various European powers on the one hand and the peoples and states of the Middle East including the Ottoman Empire on the other. The period reveals both Europe and the Middle East evolving rapidly, but not always in tandem. Key themes to be covered include the Ottoman Tanzimat, the Crimean War of 1854, the fate of non-Muslim minority communities under Ottoman rule, the Millet system, the “Eastern Question” and the “Sick Man of Europe,” reasons for Ottoman decline and eventual collapse, British-French rivalry in the Middle East, Russian quest for access to the warm waters of the Mediterranean, German-Turkish relations and the First World War, Mustafa Kemal Ataturk and the creation of modern Turkey, European colonialism and Arab liberation from the Ottoman yoke, and the rise of the Arab state system.

HST243 Economic History of the Middle East[3 – 0]
The course follows the development of economic growth and potential throughout the Middle East and North Africa regions mainly in early modern and modern times. The treatment is usually country by country and the emphasis is on shifts from early cottage industries to the tax farming Iltizam system under the Ottomans to the beginnings of rudimentary irrigation schemes and cotton cultivation in Mohammad Ali’s Egypt. The gradual collapse of Ottoman finances and growing dependence on foreign creditors as well as increased foreign competition in the textile and cotton domains are covered in conjunction with the importance of the region in terms of the passage of the major trade routes between Europe and Asia. The regional significance of the opening in 1869 of the Suez Canal is analyzed. Attempts at industrialization in the 20th century and grand schemes like the High Dam project in Egypt and the discovery of oil in Arabia are discussed extensively. Charles Issawi’s classic work on the economic history of the region is used as a guide for basic readings along with other more recent authoritative treatments of specific economic issues.

HST244 History of the Arab-Israeli Conflict [3 – 0]
This course focuses on the emerging clash between the nascent Zionist project starting in the 19th century and the gradual dispossession of the Arab inhabitants of Palestine culminating in the 1948 creation of the state of Israel. The approach is historical concentrating on the genesis of Zionism in parts of eastern Europe, the 1897 Basel conference, relations between Herzl and the Ottoman sultan and Weizmann and the British, the Balfour Declaration, early Jewish immigration into Palestine, the impact of the two world wars and the Holocaust, the career of Jabotinsky, Arab attitudes and divisions, the rise of Arab nationalism, the series of Arab-Israeli wars, the emergence of the Palestinian Fedayeen and the Palestine Liberation Organization, Palestinian nationalism, impacts on the surrounding Arab states, American and Western support for Israel, revisionist Zionism and post-Zionism, and the Islamist factor. The course attempts to shed light on the historical progression of the conflict and the external players impacting its development. It also assesses the often faulty Arab responses to Israel as well as the internal evolution of the Jewish state from frontier kibbutzim to nuclear power.
HST301 Europe in Late Antiquity 410-1066 [3 – 0]
This course is a survey of European history from the fall of Rome to the beginning of the Norman Conquest of Britain. Topics to be covered include conditions in Europe throughout Late Antiquity and the Early Middle Ages; the nature and spread of the Germanic tribes—Goths, Vandals, Franks, Huns, and others—and a critical look at labels like “Barbarians” and “Dark Ages;” the rise of Western monasticism; the Iconoclastic Controversy and early Christological disputes; the Merovingians and Carolingians; Clovis and Charlemagne; the eastern and western empires; the clashing authorities of popes and kings; and the ecclesiastical schism of 1054. Primary works to guide the discussion include the writings of Tacitus, St. Augustine’s City of God, Boethius’ Consolation of Philosophy, the writings of John Scotus Eriugena, St. Gregory of Tours’ History of the Franks, the Rule of St. Benedict, the mystical writings of Dionysius the Areopagite (Pseudo-Dionysius), Pope Gregory the Great’s Pastoral Care, Venerable Bede’s Ecclesiastical History, and more.

HST302 Medieval Europe 1066-1453 [3 – 0]
This course is a study of medieval European history from the Norman Conquest of Britain to the fall of Constantinople at the hands of Mohammad the Conqueror. Major topics include the Crusades, the founding of Europe’s great universities, the rise of scholasticism, Gothic architecture and the great cathedrals, the medieval guilds, the Concordat of Worms of 1127, the Magna Carta of 1215, Marco Polo’s Venice, the Hundred Years War, and the Council of Florence in 1439. Philosophical and religious figures like Abelard and Heloise, Peter Lombard, Anselm, Bonaventure, Albertus Magnus, Thomas Aquinas, Roger Bacon, Meister Eckhart, Moses Maimonides, Thomas Becket, Duns Scotus, William of Ockham, Nicholas of Cusa, and Thomas a Kempis, as well as literary figures like Boccaccio, Dante, and Chaucer will be covered through readings in their original texts and/or through authoritative scholarly investigations. The emergence of the Franciscan and Dominican monastic orders, St. Bernard of Clairvaux, Petrarch, and Gutenberg are also some of the themes that will be stressed, as will the latest scholarship on everyday life in medieval Europe.

HST303 Early Modern Europe 1450-1750 [3 – 0]
This course concentrates on the Italian and Dutch Renaissance, the Protestant Reformation, and the Catholic Counterreformation in Europe. It covers the period from the outbreak of the Wars of the Roses in 1455 to the beginnings of the Industrial Revolution in the mid-eighteenth century. It also treats the Age of Discovery that brought Europeans to the New World starting in 1492 and sent them to the far corners of Africa and Asia. Renaissance humanism and its monumental achievements in art, architecture, and literature will be emphasized. The great intellectual encounter among Christians, Muslims, and Jews in Andalusia and the termination of Arab rule there in 1492 at the hands of Ferdinand and Isabella of Spain will be an important sub-theme, as will the start in 1481 of the Spanish Inquisition. Socio-economic conditions in early modern Europe and the rise of mercantilism will be investigated as well and related to broader political and cultural developments. The beginnings of the scientific revolution at the hands of Copernicus, Kepler, Galileo, Tycho Brahe, Newton, and Leibniz will also be covered. Tudor and Stuart England, the reigns of Queen Elizabeth and Henry VIII, the Wars of Religion ending with the Edict of Nantes in 1598, the Thirty Years War (1618-1648) ending with the Treaty of Westphalia, and the Glorious Revolution of 1688 are crucial milestones for the cumulative narrative of this course. Naturally, figures like Ignatius of Loyola, Erasmus, Shakespeare, Bacon, Descartes, Pascal, Hobbes, Locke, Milton, More, Spinoza, Vico, and others will be an integral part of the historical narrative.

HST304 Modern Europe 1750-1945 [3 – 0]
This course treats the period starting with the Industrial Revolution in Britain and ending with the culmination in 1945 of the Second World War. Crucial events of special focus entail the American Revolution of 1776 and the French Revolution of 1789, both approached comparatively but also with a view to showing the intricate historical connections between the two related transatlantic upheavals; the Napoleonic era; the 1815 Vienna settlement; the 1848 revolutions throughout Europe; The Crimean War of 1854; the unifications of both Italy and Germany; Whigs and Tories; Victorian England; the era of the New Imperialism; the 1917 Bolshevik Revolution; and the First and Second World Wars and the inter-war period. Culturally, the treatment will include discussions of the Age of Reason and the French Encyclopedists; romanticism; socialism; the idea of progress; nationalism; evolutionism; anticlericalism; impressionism; existentialism; fin-de-siecle Vienna; cubism; symbolism; surrealism; the absurd; and the “Social Gospel” and NeoThomist responses of the Catholic Church beginning with Pope Leo XIII and the First

HST305 Contemporary Europe 1945-1989 [3 – 0]
This course covers the period from the end of World War II to the fall in 1989 of the Berlin Wall and the beginning of the end of communist rule in Eastern Europe and Russia. Its main focus is on the post-war ascendancy of both the United States and the Soviet Union and the developing rivalry between them known as the Cold War. Main flashpoints of the Cold War include Korea, Cuba, Vietnam, the Middle East, and Afghanistan. Containment and the arms race will also be discussed. Other themes include the Universal Declaration of Human Rights of 1948, McCarthyism of the 1950s, the nonaligned movement and the Bandung Conference of 1955, the civil rights movement, the rise of feminism, the Catholic Church's Second Vatican Council in the early sixties, the Hippie phenomenon and the drug culture of the 1960s, Sputnik and the race to the Moon, the 1968 student upheavals in Paris and elsewhere, Watergate, the technological and information revolutions, and globalization. Some key figures of interest in the contemporary period include Stalin, Churchill, Castro, Eisenhower, De Gaulle, Ho Chi Minh, Kissinger, Nixon, Reagan, Lech Walesa, Gorbachev, Pope John Paul II, Gates, Solzenitsyn, Habermas, Cioran, Baudrillard, and others.

HST330 History of Byzantium [3 – 0]
The course traces the history of the Byzantine Empire from Emperor Constantine the Great (324-337 AD) to the fall of Constantinople during the reign of Constantine XI Palaeologus (1449-1453). Important imperial periods include the reigns of Theodosius I (379-395), Justinian I (527-565), Empress Theodora (1042 and 1055-1056), and then the Comneni and Palaeologi lines. Relations of Byzantium with Rome and the West, the east-west split and the Schism of 1054, Orthodoxy versus heresy, Germanic incursions, and the Crusades (particularly the devastating Fourth Crusade) will be covered in detail. Also relations with the Slavs in Russia and the Balkans, the Persians, and the Muslims will be investigated closely.

HST331 History of Russia [3 – 0]
The course surveys Russian history beginning with the early peoples: the Scythians, Huns, Ruthenians, and Slavs. It starts with Rurik, Novgorod, and the rise of Kievian Rus, and dwells on the mission of Cyril and Methodius to Christianize the Slavs culminating with St. Vladimir and the conversion in 988 of the Slavs to Christianity. Also covered are the establishment of Moscow, the institution of the Czar, relations with the Russian Orthodox Church and the Crimean Tatars, and key Czars and their achievements like Ivan IV (the Terrible), Peter I the Great, Catherine II the Great, and the Romanovs ending in 1917 with Nicholas II. Important stations in the narrative include the “Time of Troubles,” the revolts of Stenka Razin (1667-71) and Pugachev in 1773, serfdom and the emancipation of the Serfs in 1861, the opening of Siberia, Slavophiles and Westernizers, Eurasia, Pan-Slavism, pogroms, Lenin and Bolshevism, Rasputin, the October 1917 revolution, the USSR, Stalin, the post-Stalin years, and the collapse of Soviet communism. Russia’s relations with Catholic Poland and Lithuania, with the other European powers, with the Ottoman Empire, with the Balkan Slavs, and with Japan, as well as how the Russians faced both Napoleon and Hitler—all constitute an integral part of the course. The thoughts and writings of leading Russian thinkers like Dostoevsky, Tolstoy, Turgeniev, Herzen, Chernyshevsky, Bakunin, Solovyov, Berdiaev, Khomyakov, Bulgakov, Gorky, Trotsky, Pasternak, Solzhenitsyn, and others will figure in the historical discussions.

HST332 History of China [3 – 0]
This course is a survey of Chinese history from the Han dynasty (202 BC-221 AD) to the Ming (1368-1644) and Ch’ing (1644-1912) dynasties. An introduction to the philosophy of Confucius is offered after which the historical survey is undertaken. The Opium War (1839-1842 and 1856-1860) between Britain and China is covered as are the Boxer uprising of 1900, Christian missionaries, the overthrowing
of the Manchus in 1912, the rape of Nanking, China during the two world wars, nationalism versus communism, Chiang Kai-shek and the Kuomintang, Mao Zedong, the Long March, the communist revolution and the creation of the Peoples Republic of China, the Cultural Revolution, and the role of Chou En-lai. Also the 99-year lease of Hong Kong to Britain in 1898: the situation in Tibet; and China’s relations with Japan, Britain, Russia, the United States, and Taiwan are discussed. Themes such as China’s traditional insularity and Western influences, the evolution of Chinese communism, and the phenomenal growth of the Chinese economy in recent decades will also be treated.

HST333 History of South Asia [3 – 0]
This course focuses on the Indian Subcontinent, which includes India, Pakistan, Bangladesh, and Sri Lanka as well as occasional forays into Central Asia. A survey is offered of the origins and main doctrines of Hinduism and Buddhism as well as the arrival on the Subcontinent of Christian missionaries (beginning with St. Thomas), and of Islam. The common Sanskrit past and Indo-European origins of the peoples and their languages are investigated, these in conjunction with the basic belief traditions of the Vedic period and the highlight texts: the Mahabharata, The Upanishads, and the Bhagavad Gita. The narrative then continues with the rise of Delhi, the Muslim period and the Mogul Empire beginning at the end of the 15th century, Akbar (reigned from 1556-1605), Shah Jahan and the Taj Mahal, Vasco da Gama in 1498 and the Portuguese and Dutch arrivals, and the English East India Company and the start of British rule in India. From Clive to Macaulay, Canning, and beyond, British administration and foreign policy with respect to the “jewel in the crown” of the British Empire are analyzed in detail as well as local reactions including the Indian Mutiny of 1857 and the rise of the Indian nationalist movement leading up to Gandhi and Nehru; the 1947 independence and partition; Jinnah and the founding of Pakistan; the rise of East Pakistan (later Bangladesh); the problem of Kashmir; Hindus, Sikhs, and Muslims; Tamils and Sinhalese; the Indian-Pakistani wars; and finally the nuclear standoff on the Subcontinent.

HST334 History of North America [3 – 0]
The course opens with a background treatment of Pre-Columbian America and the original native inhabitants. There follows a consideration of Columbus’ discovery of the New World in 1492 and the arrival of the early European settlers including Jamestown, the Pilgrims, the Mayflower, and Plymouth Rock. Colonial America is then covered with a concentration on the emerging French-British rivalry over North America—for example, the French and Indian War known in Europe as the Seven Years’ War of 1756-1763. The events leading up to the 1776 American Revolution, the Revolution itself, the birth of the United States, the Declaration of Independence, the Constitution, and the Bill of Rights, along with an analysis of the Founding Fathers’ writings and policies (The Federalist Papers), are all discussed extensively. The Antebellum period, the Lewis and Clark expedition of 1804-1806, the Monroe Doctrine of 1823, the 1849 California Gold Rush, the problem of slavery, and the background to the Civil War come next. The Civil War itself (1860-1865), the defeat of the Confederacy, Abraham Lincoln, the abolition of slavery, and the post-war reconstruction are then treated. Further developments and themes include the growth of the US economy and the US navy, the Spanish-American War of 1899, isolationism versus interventionism, Republicans and Democrats, World War I, Wilsonianism, the 1929 Stock Market Crash and the Great Depression, FDR and the New Deal, World War II, the Cold War, Korea, Vietnam, the Civil Rights movement, and Watergate.

HST335 History of Central and South America [3 – 0]
The course surveys South American and Central or Meso-American history from Pre-Columbian times—including the native Andean civilization of the Incas, the Mayans of Central America, and the Aztecs of Mexico—to the second half of the 20th century. Columbus’ third voyage in 1498 marks the start of Spanish involvement in South America and the era of the Conquistadores. Catholic missions (mainly Jesuits, but also Franciscans, Dominicans, and Augustinians) soon followed. Philip II of Spain set up the Inquisition in South America in 1569. The Portuguese colonized Brazil and Portuguese-Spanish relations are investigated as well as both their relations with the indigenous populations. The Spanish achieved independence between 1810 and 1825, while Brazil became independent of Portugal in 1822-1823. The careers of Simon Bolivar, Cortes, and other prominent figures are assessed. Highlights in the histories of individual countries are studied and issues such as exploration and depletion of the Amazon rainforest, mining, agriculture, oil, and drug cultivation are analyzed from a historical perspective. The rise in the 20th century of both militarism and communist agitation is
discussed as are the achievements of Ernesto Che Guevara and Fidel Castro. Church-state relations, whether with right-wing authoritarian regimes or communist ones, are chronicled. The narrative ends with the 1982 Falklands War between Britain and Argentina.

**HST336 History of Africa [3 – 0]**

Africa as the home of the oldest known human settlements (“Lucy” in East Africa) saw Phoenician, Greek, and Roman colonies in Carthage and along the Barbary coast of North Africa. After 430 AD the Vandals crossed into North Africa and occupied Hippo, the bishopric of St. Augustine. The course then surveys the Byzantine, Muslim, Berber, Ottoman, and European periods of political and colonial control in the north. In Sub-Saharan Africa Dutch settlers arrived in 1650 to the Cape and clashed with the Bantus and Zulus. In the 19th century European exploration of the Congo and Upper Nile river basins took place and the careers of Stanley and David Livingstone are discussed. British-French colonial rivalry throughout the continent culminating in the late 19th century “Scramble for Africa” is closely analyzed. British adventures in Sudan, the death of Gordon at the hands of the Mahdi, and the Fashoda incident between Kitchener and Marchand are treated. French colonization of Algeria starting in 1830 and the exploits of British imperialist Cecil Rhodes are also covered. Belgian Congo, Italian Ethiopia and Libya, and a scattered German presence particularly in South-West Africa (Namibia) are also a part of the narrative. The 1899-1902 Boer War between the Afrikaans and the British is analyzed as an important turning-point. Other themes include the slave trade in Zanzibar, the Cape to Cairo railway, and African nationalism leading to decolonization and independence after World War II.

**HST340 Topics in the History of Ideas [3 – 0]**

This course aims to offer students a glimpse into the exciting world of intellectual history. The intricate thematic interplay between history, philosophy, theology, literature, and the arts in any given period comprises the subject matter for this course. Cross sections of particular ages like for instance Victorian England, or nineteenth century Russia, or Renaissance Italy are treated as to the complex interconnections between a host of prevailing ideas and their embodiment in specific philosophical, literary, religious, and other forms of human creative output. The objective of the course is to immerse students in the unique intellectual tenor of an age and provide them with a firsthand feel for any peculiar intellectual signature it might manifest.

**HST341 Topics in the History of Science [3 – 0]**

This course can provide students with a general overview of scientific progress throughout human history, or it can choose to limit the period covered to a shorter and more coherent span. Possible examples might include the history of Arabic science, science during the Renaissance, developments in physics since Newton, the rise of modern science, and others. The course can also concentrate on historical developments within a specific domain of the natural sciences and confined to a designated period. Examples include the history of astronomy, history of chemistry, history of medicine, history of evolutionary biology, history of physics, history of mathematics, and so on.

**HST342 Topics in the History of Religion [3 – 0]**

This course can concentrate on a specific world religion and trace its development over time, or it can follow the comparative approach with respect to two or more religions, or, alternatively, it can choose a religious theme such as mysticism, for example, and follow its unfolding threads in one or more religious tradition. Obversely, the course can decide to focus on a history of atheism. Whichever approach is chosen there have to be a couple of introductory lectures that define the religious animus, briefly survey its earliest manifestations in human history, and then zero in on the specific topic at hand. The major world religions usually provide the subject matter for various permutations of this course: Judaism, Christianity, Islam, Mormonism, Buddhism, Hinduism, Confucianism, Shinto, Taoism, Sikhism, and varieties of animism.

**HST343 Topics in Economic History [3 – 0]**

This course surveys the main developments in economic theory during the modern period. It begins with an introductory background about the medieval guilds and crafts and the feudal agrarian-based economies of the early modern period. Then it covers systematically as major figures the contributions of Adam Smith, David Ricardo, T. R. Malthus, J. M. Keynes, M. Friedman, and J. K. Galbraith. The differing evolutions of free-enterprise and command economies, and how they manifested themselves in capitalism and socialism, are investigated in some detail. The intricate interplay between the often antagonistic forces of freedom and
poverty is emphasized, as is the rise of the modern banking and investment systems. The influence of an increasingly globalized world on production, labor, distribution of wealth, north-south dynamics, access to natural resources, and development is a central theme.

**HST401 Special Topics in History [3 – 0]**
Some possible topics could include: social history, oral history, history of slavery, history of architecture, history of changing tastes, history of ideologies, history of revolutions, comparative nationalisms, comparative empire building, cases of historical decline, and much more. Specific periods to be covered can also be designated.

**HST499 Senior Study [3 – 0]**
Every student majoring in history will be required to take this course in his/her senior year. It is a 3-credit course run seminar-style and entailing the interactive sharing of independent research by students working on the topics for their Senior Studies that have been agreed upon individually with the professor. Students write a supervised 40-page Senior Study on a topic formulated in consultation with a member of the history faculty.

**ITALIAN**

**ITA 201 Beginning Italian [3-0, 3 cr.]**
A beginning course in standard Italian designed for students who have no previous knowledge of the language. The course aims at basic proficiency in the language skills: listening, speaking, reading and writing focusing on the use of the Italian sound system, acquisition of vocabulary and developing standard grammatical structures, reading of short texts and writing at the paragraph level. Emphasis is placed on students’ use of the language in authentic situations of everyday life beginning to cultivate an appreciation for the richness and diversity of the culture. A communicative content task-based approach is used and opportunities are given to participate in activities and events.

**PHILOSOPHY**

**PHL101 Introduction to Philosophy [3-0, 3 cr.]**
This course introduces the major issues and outlooks in ancient, modern, and contemporary philosophy.

**PHL201 Ancient Philosophy: From the pre-Socratics to the Epicureans and the Stoics**
This course examines the roots of Western philosophy in Ancient Greece, and serves as a broad introduction to philosophy. While emphasis will be placed on the works of Plato and Aristotle, the renewed appreciation of the depth of pre-Socratic thought and the value of post-Aristotelian thought will also be given their due. In the process, themes such as the origins of the universe, the nature of reality, the basis of our knowledge, the good life and society, and the handling of misfortune will be discussed.

**PHL202 Medieval Philosophy: From Plotinus to Ockham**
An examination of the works of major Medieval thinkers. Special attention will be paid to the origins of modern philosophy in Medieval thought, and how Medieval thinking stands in contrast to Ancient thinking. Also, the theological character of scholastic thought will be emphasized, for example: attempts to reconcile each of Christian and Islamic teachings with the authority of Aristotle; attempts to reconcile the benevolence of God with the existence of evil; attempts to reconcile the omnipotence of God with presumed limits placed on his power by “natural laws”; and attempts to reconcile the omniscience of God with free will.

**PHL203 Early Modern Philosophy: From Montaigne to Kant**
Emphasis will be given to (1) early modern theories of knowledge (epistemology) against the backdrop of the Scientific Revolution and (2) the roots of early modern philosophy in Renaissance humanism and the outstanding individuals such as Montaigne who had contributed to several areas of human endeavour. In parallel with (1) and (2), two contrasting approaches to acquiring knowledge will be studied, one based on experience (empiricism), the other on reason (rationalism). Finally, attention will be given to the significant role of skepticism.

**PHL204 Modern Philosophy: From Hegel to Heidegger and/or Frege to Wittgenstein**
Two variants of the course will be offered to reflect recent realities. The first variant of the course traces a development from Hegel through Marx, Kierkegaard, Schopenhauer, and Nietzsche into 20th Century Phenomenology and Existentialism. The second variant of the course will look at the work of Frege and Russell, and some of their influential 20th century successors. Within the second variant, special attention will be given to Wittgenstein, who was a unique and unclassifiable thinker of great importance.
PHL 210 Critical and Creative Thinking
Students will be taught how to read out arguments in ordinary language – for instance in opinion pieces in newspapers and magazines or in short philosophical passages – and to identify the kind of argument, and to analyze and evaluate those arguments. Students will also be introduced to formal modes of reasoning in categorical and symbolic logic. Finally, students will be trained in thinking creatively about certain passages from the established great figures in the philosophical tradition.

PHL 211 Symbolic Logic
This course introduces the concepts and principles of symbolic logic, in particular the distinction between valid and invalid arguments, the determination of logical relations between sentences, the formal analysis of sentences so that the logical relations between them can be determined, the definition and construction of a formal language, the evaluation of truth, truth-functions, quantifiers and their use in the analysis of arguments, and predicate logic.

PHL301 Ethics
Ethics is classically the study of what is right, just, appropriate, or desirable, all of which are among the various meanings given to "the good", the central concern of ethics. Typically, this course will have historical, theoretical, and applied dimensions: the historical dimension will provide acquaintance with the various kinds of ethical and moral theory that have emerged over the last two and half millennia; the theoretical dimension will examine the content of these ideas closely; and the applied dimension will sharpen the student’s ability to think through distinctively ethical and moral problems.

PHL302 Theory of Knowledge
Theory of knowledge, known as “epistemology”, is a fundamental and enduringly significant branch of philosophy. Despite many historical transformations (some of which will be examined), it has had stable aims, among which are the definition of knowledge, the distinction between knowledge and belief, the methodologies and procedure by which knowledge is acquired, and how to deal with skepticism. These issues will be raised and explored with reference to both ancient and modern texts.

PHL303 Metaphysics
Metaphysics is the broad philosophical study of the basic form, structure, essence, and elements of reality or “being”, and in its classical form it tries to provide a unified account of how the cosmos hangs together and what makes the cosmos what it is. This course may variously emphasize metaphysical topics in religion, physics, and/or mind. Overall, the course will survey philosophers’ quest to grasp the basic nature of reality (perhaps with that of some physicists and biologists who have recently joined philosophers in their timeless quest).

PHL 311 Philosophy of Religion
This course will address fundamental philosophical questions arising from all major religions in the worlds, including the three Abrahamic faiths as well as the older Asian traditions such as Hinduism, Buddhism, Confucianism, and Daoism. The course will deal with common religious themes such as Transcendence (or the Sacred or Mystery), religious experience, religious language, symbolism, the relationship between faith and reason, the relationship between science, mythology, and religion, and religious pluralism.

PHL321 Philosophy of Art
The course deals with (1) how we can discern whether something qualifies as art, in what sense our aesthetic judgments are subjective or objective, what qualifies as a good, bad, correct, or an incorrect interpretation of an artwork, and whether we can learn from art (epistemological issues); (2) the nature of art and artworks and the kinds of experience associated with them, how art relates to reality, the creative process, and aesthetic experience (metaphysical issues); and (3) the moral dimension of art (moral issues).

PHL322 Philosophy in Literature and Film (already exists as Existentialism in Literature)
Modern novels and films have often been far more effective than the work of philosophers in engaging readers with some of the most important questions of life, such as the existence of God, the meaning of life, the role of art in shaping human beings, the nature of time, truth, and reality, our relationship to nature, and so on. This course will therefore turn to literature and/or film to immerse students in situations that bring urgent philosophical issues to the foreground with great power and conviction.

PHL323 Philosophy of History
The principal aim of this course is a critical consideration of the claim that there has been genuine progress in global history, especially morally. Typically this course will study the work of G.W.F. Hegel and use it as a departure point, but other variations are possible. These variations will be based on the work of Hegel’s
critics, such as Marx, Nietzsche, Adorno, and Foucault. A byproduct of such criticism has been the rediscovery of the value of pre-Hegelian philosophy of history, and so the worldly and deeply cultured approach taken by Vico, Herder, and von Humboldt will also be covered.

PHL324 Philosophy of Science
Traditionally, this course has consisted in an examination of how philosophers have regarded science, especially the natural sciences: physics, chemistry, and biology. However, it has also become important to consider how scientists themselves regard their own work, especially since this often disagrees with what philosophers say about science. Readings will therefore be taken from well known philosophers of science such as Popper, Kuhn, Lakatos, Feyrerabend, Holton, and A. W. Moore, and from the writings of scientists themselves, such as Darwin, Maxwell, Mach, Poincarré, Einstein, Heisenberg, Eiseley, Schrödinger, and Hawking.

PHL325 Philosophy of Mind
Themes to be discussed are the nature of mind, the argument between materialists and non-materialists, artificial intelligence, and the mind, the argument between materialists and non-materialists. Themes to be discussed are the nature of mind, the argument between materialists and non-materialists, and the resistance of mental states such as beliefs, intentions, values, norms, thoughts, perceptions, and judgments to physical interpretation. Positions canvassed will be chosen from the following: dualism, behaviourism, identity theory, and functionalism. Special consideration will be given to philosophers (like Hegel, Nietzsche, and Wittgenstein) mindful of how traditional theory distorts our ability to appreciate the elusive “nature” of mind.

PHL326 Social and Political Philosophy
Through a selection of works by leading thinkers from Plato onwards, issues addressed include the basic theoretical approaches (social contract theories, utilitarianism, political realism, politics guided by the idea of the Good and other ideas that are metaphysically grounded), the nature of power, good vs. bad governance, the role of reason in social and political life, ideology, the relation of ethics to politics (including a look at how ethical theories like utilitarianism and pragmatism can be utilized in political theory), and the recent liberalism vs. communitarianism debate.

PHL327 Philosophy and Mythology
In conjunction with the recent success of popular works, this course attempts to revive interest in and appreciation of mythology. Emphasis will also be made on the realization that mythology has played an even greater role in shaping philosophical thought in ancient Greece, India, and China than previously recognized. Readings will include classic general works about mythology as well as works that illustrate how mythology has influenced some of the greatest thinkers of the ancient world. The aim is to portray a more “living” or “concrete” notion of what later became metaphysics and ethics. The implications for the philosophy of religion will also be discussed.

PHL328 Arab and Islamic Philosophy
A look at key Arab and Islamic figures, past and present, such as al-Kindi, al-Farabi, Ibn Sina, al-Ghazzali, Ibn Rushd, and Mulla Sadra; and René Habachi, Charles Malik, Muhammad Abed al-Jabir, Hassan Hanafi, Seyed Hossein Nasr, Muhammad Arkoun, and Abdelkarim Surush. These works will be discussed in relation to how broad philosophical themes have been treated, including questions of metaphysical, moral, epistemological, political, and religious interest.

PHL350 Individual Philosophers
This course focuses on specific topics in the philosophical tradition; classical and modern. It may cover topics such as contemporary philosophy, interactive combinations among individual philosophers, specific philosophical themes, Arabic and Islamic philosophy, world philosophy, Phenomenology and Analytical Philosophy.

PHL401 Special Topics
This course focuses on specific topics in the philosophical tradition; classical and modern. It may cover topics such as contemporary philosophy, interactive combinations among individual philosophers, specific philosophical themes, Arabic and Islamic philosophy, world philosophy, Phenomenology and Analytical Philosophy.

PHL499 Senior Study
Students must complete a supervised substantial paper (or an approved equivalent) on a topic formulated in consultation with a member of the philosophy faculty. This course provides the opportunity for seniors to share with one another their work in progress in a collegial seminar setting. Students present their work and receive feedback from their peers and their instructor.
PEACE AND JUSTICE EDUCATION

PJE201 Cross-Cultural Communication for Peace [3-0, 3 cr.]
This course examines the basic concepts, theories and issues, of intercultural communication, and cross-cultural human relations. The course explores how these relate to interpersonal, and group conflict, and conflict transformation.

RELIGION

REL312 Interpretation of Religious Literature [3-0, 3 cr.]
This course studies the various methods of interpreting religious texts, literary forms, and symbols. Attention is given to the principles and exegetical methods of interpreting the New Testament, and the Koran.

REL411 Myth & Ritual [3-0, 3 cr.]
This course studies the historical, philosophical, theological, and aesthetic aspects of myths and rituals. Special attention is given to the content and meaning of myth, and ritual, in the Greco-Roman, Christian, and Muslim traditions.

REL412 History of Religious Thought in the Middle East [3-0, 3 cr.]
This course introduces the thinkers, and the major problems key to the historical formulation and articulation of Middle Eastern Christianity and Islam.

REL413 Representatives of Christian Thought in the Modern Period [3-0, 3 cr.]
This course critically studies the works of some modern Christian thinkers.

REL414 Representatives of Islamic Thought in the Modern Period [3-0, 3 cr.]
This course critically studies the works of some modern Muslim thinkers.

SPANISH

SPA 201 Beginning Spanish [3-0, 3 cr.]
A beginning course in standard Spanish designed for students who have no previous knowledge of the language. The course aims at basic proficiency in the language skills: listening, speaking, reading and writing focusing on the use of the Spanish sound system, acquisition of vocabulary and developing standard grammatical structures, reading of short texts and writing at the paragraph level. Emphasis is placed on students’ use of the language in authentic situations of everyday life cultivating an appreciation for the richness and diversity of the culture of the peoples. A communicative content task-based approach is used and opportunities are given to participate in activities and events.

SPA 202 BEGINNING SPANISH II
A beginning level-2 course in standard Spanish designed for students who have already a primary contact with the language. The course aims at strengthening the vocabulary, the accent, and especially the grammar. The course gives a broader perspective on the reading, writing, and listening, on a higher and more sophisticated level. Past and future times will be included to give the students the opportunity to understand and communicate in various situations and moments. Emphasis is placed on students’ use of the language in a faster reflex and response when it comes to “thinking in Spanish”. Completing this course will open new horizons for students in different fields who are seeking jobs, not only in Latino America and Spanish speaking countries, but in all the cosmopolitan cities in the world.

COMPARATIVE LITERATURE (GRADUATE)

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 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.]

CLT899 Thesis [6 cr.]
Department of Natural Sciences

Chairpersons
- Kabbani, Ahmad - Beirut Campus
- Daher, Costantine - Byblos Campus

Degree Offered
- Bachelor of Science (B.S.) in Biology
- Bachelor of Science (B.S.) in Chemistry
- Bachelor of Science (B.S.) in Nutrition
- Minor in Biology
- Minor in Chemistry
- Minor in Environmental Science
- Master of Science (M.S.) in Molecular Biology

Chairpersons
- Kabbani, Ahmad - Beirut Campus
- Daher, Costantine - Byblos Campus

Professors
- Bogharian, Krikoris
- Hashwa, Fouad
- Kabbani, Ahmad

Associate Professors
- Baroody, George
- Daheer, Costantine
- Houri, Ahmad
- Korfali, Samira
- Na'was, Tarek
- Semaan, Mars
- Khalaf, Roy

Assistant Professors
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- Abu-Safe, Husam Hamzeh
- El-Sibai, Mirvat
- Rizk-Jamati, Sandra
- Tokajian, Sima
- Wex, Brigitte
- Zeeni, Nadine
- Bassil, Maya

Instructors
- Garabedian, Sami
- Naous, Ghada
- Obeid, Samir

Staff
- Naccash, Hanan, Senior Academic Assistant, Beirut
- Jamhour, Katia, Senior Academic Assistant, Byblos
- Jabi, Sawsan, Science Laboratory Supervisor, Biology, Byblos
- Bou Farah, Helena, Science Laboratory Supervisor, Biology, Byblos
- Moustafa, Rasha, Science Laboratory Supervisor, Chemistry, Byblos
- Wehbeh, Marwan, Senior Science Laboratory Technician, Chemistry, Beirut
- Haidar, Diala, Senior Science Laboratory Technician, Physics, Beirut
- Farah, Maya, Senior Science Laboratory Technician, Biology, Byblos
- El-Hajj Suleiman, Zaed, Athletic Coordinator
- Karam Jean, Animal Room Technician, Byblos

Resources

1. Beirut Campus

A. Biology Laboratories:

a. Teaching Biology Laboratory:

It is located in Sage Hall – First Floor, are modern and up to date. One of the labs, which serve undergraduate students majoring in Biology, Pharmacy as well as freshman students, is equipped with sophisticated instrumentation supporting all disciplines of biology, with emphasis on the field of contemporary molecular biology. The main equipment includes: teaching microscopes, high speed centrifuges, incubators, UV-Visible spectrophotometers, deep freeze facilities (80°C), Rotoevaporator, concentrator, hybridization oven, thermal cycler, autoclaves, Fluorometer, Electroporator, Isoelectric Focusing, pulse-field gel electrophoresis, different types of electrophoresis setups. It is also fully equipped with audiovisual systems including videomicroscopy and LCD projector for continuous demonstration and experimental purposes. Also the lab contains a set of advanced kits for the newly implemented Genetics Lab.

b. Cell Culture Lab:

It is mainly used by Professor and graduate students, with state-of-the-art equipment including Elisa Plate Reader and Washer, CO2 incubator, research Fluorescent microscope, Thermal cycler, inverted microscope, Imaging system, and a Biological safety cabinet. Annexed to the Biology labs are storage facilities.

B. Chemistry Laboratories:

They are located in Sage Hall, second floor, are adequately equipped with the state-of-the-art instrumentation, for teaching practical undergraduate and graduate courses. The Chemistry majors as well as the Pharmacy
students are equipped with PC-controlled Viscosity meters, Osmometers, BOD analyzers, Turbiditimeters, Refractometers and Polarimeters. The advanced system of Instrumentation supporting all branches of Chemistry include a wide range of spectrophotometers UV-Visible; Infrared FTIR; highly advanced PC-controlled Chromatography systems, GC and HPLC and Ion Chromtography; Total Organic Carbon and NCHS Elemental analyzers systems; Atomic Absorption. Annexed to the Chemistry laboratories are the storage facilities with the latest safety equipment of gas detection, chemical spill and fire alarm systems, with the waste treatment facilities with the new standards of waste treatment and waste management methods. The Chemistry labs are equipped with audiovisual systems including video microscopy for continuous demonstration and experimental purposes.

2. Byblos Campus

The laboratories are equipped with both basic and latest technology instruments that enable students to conduct basic and highly specialized research. In addition, to facilities available in the department, students have access to laboratory facilities in the School of Pharmacy. Furthermore, students have access to all physical and electronic resources provided by the LAU library as well as necessary IT support.

A. Biology Labs

a. Biology Teaching Labs:
The two teaching labs are located in the science building rooms 307 and 308. Each lab accommodates around 20 students and is equipped with all necessary facilities for undergraduate lab teaching (microscopes with or without cameras, incubators, centrifuges, balances, pH meters, UV-Vis spectrophotometers, spriometers, kymographs, Environmental chamber ...). Annexed to the lab in Sci 308 are two relatively smaller rooms, one serves as a store room for chemicals, glass and plastic-wares, the other contains a High speed centrifuge, an Ultracentrifuge, 2 refrigerators and other minor equipment.

b. Core Molecular Microbiology research Lab:
It is located in the Science building room 306. This lab is specifically equipped to fit the research needs in basic Molecular Microbiology. It provides a space for graduate students working in Molecular Microbiology and Biotechnology. This lab is equipped with 3 Thermal cyclers, a Real-Time PCR, a UV/visible spectrophotometer, a Biolog bacterial identification system, a PCR preparation unit as well as 2 air incubators and other minor instruments.

c. Two Core Molecular Biology Labs:
Two labs located in the Science building rooms 303 and 305. Each Lab consists of three benches serving as working area for graduate students. These labs are equipped specifically to fit the research needs in Molecular Biology. These labs are equipped with thermal cyclers, DNA sequencer, Pulse-Field gel electrophoresis unit, Gel documentation systems, Fermenters, CO2 incubator, vacuum concentrator, vacuum blotter, sonicators, homogenizers, Gel electrophoresis apparatus, Western blot apparatus, automated gel stain/destainer, Rotary evaporator, autoclaves, hybridization oven/UV cross linker, deep freeze, refrigerators, inverted and regular microscopes, laminar flow hood, and many other small instruments. Each lab has several computer terminals accessible to Graduate students and linked to the university network and high speed internet.

d. The Genomics and Proteomics Research Labs:
The Genomics and Proteomics Research Labs are located in room Sci 302 and 309. These labs are equipped with state of the art machines needed in genomics and proteomics research. Most importantly, you can find high throughput genotyping and sequencing instruments as well as state of the art proteomic analyzer (MALDI TOF TOF), FTIR, Real-Time PCR ....

e. The Cell Culture IVF/Epifluorescent microscope lab
This is a dry lab located in room Sci 310 and contains two major instruments: an inverted Epifluorescent microscope equipped with a micromanipulating system for in vitro fertilization and a radioactive/fluorescent microplate counter and a CO2 incubator.

B. Nutrition Teaching Lab:
It is located in the Science building room 304. The lab is equipped with necessary machines for food analysis.

C. Animal Room:
The animal room is located on the roof of the Science Building. It contains two animal species (Spague Dawley rats and BALB/c mice) that are inbred with a consistent average stock of more than 500 rats and 300 mice.
D. The Chemistry Lab:

It is located in the Science building room 508. It consists of a spacious area with necessary machines needed for almost all kind of chemistry lab work, for students registering in chemistry courses. Annexed to it, there is a descent research lab facility, an office space and a store room. Just facing the chemistry lab there is an additional store room and a cold room. On the same floor, student may have access to other sophisticated instrument used in research and advanced courses such as 300Mhz NMR, GCMS, HPLC, GC, rotary evaporator, deep freezer, freeze dryer...

Undergraduate 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.

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.).

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:

- Prepare students for careers in biology and related disciplines, with a broad knowledge of biological and natural sciences concepts, theories and techniques.
- Develop graduates who have experience in research and scientific methodology, aware of ethical issues and show critical thinking
- Develop graduates who are committed to lifelong learning, capable of working in a team and show good communication skills

LEARNING OUTCOMES

Graduates in the Bachelor of Science in Biology will demonstrate:

- Core knowledge of anatomy, physiology, organization, diversity, biochemistry, molecular biology, microbiology, genetics, evolution and ecology.
- Knowledge of relevant topics in statistics, computing, physics, and chemistry.
- The ability to integrate concepts by merging knowledge from biology and related disciplines.
- Hands on experience in basic laboratory techniques
- The ability to conduct basic research
- The ability to utilize acquired knowledge in designing/performing laboratory experiments
- The ability to analyze and critically evaluate experimental results and observations
- The ability to weigh ethical issues in science
- The ability to research, retrieve, and document scientific literature
- The ability to follow up on advances in biology and develop necessary skills for continued professional development
- The ability to write and communicate biological concepts effectively
- The ability to work as part of a team and share information

CURRICULUM REQUIREMENTS

The program requires 96 credits. 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 41 credits in Biology and Biochemistry.
Department of Natural Sciences

### 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

### Chemistry (16 credits)
- CHM201 Chemical Principles 3
- CHM202 Analytical Chemistry 3
- CHM204 Quantitative Analysis 2
- CHM311 Organic Chemistry I 3
- CHM312 Organic Chemistry II 3
- CHM313 Organic Chemistry I Lab 1
- 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

### SUGGESTED THREE-YEAR STUDY PLAN:

#### Year I

**Fall**
- BIO201 General Biology I 4
- ENG— English Course (LAC) 3
- CHM201 Chemical Principles (LAC) 3
- MTH200 Mathematics for Life Sciences (LAC) 3
- ETH201 Moral Reasoning 1
- PED2— Physical Education 1
**Total** 15cr

**Spring**
- BIO202 General Biology II 4
- ENG— English Course (LAC) 3
- HLT201 Basic Health 1
- STA205 Biostatistics (LAC) 3
- CHM202 Analytical Chemistry 3
- CHM204 Quantitative Analysis 2
**Total** 16cr

#### Year II

**Fall**
- BIO321 Genetics 3
- BIO322 Genetics Lab 1
- CHM311 Organic Chemistry I 3
- CHM313 Organic Chemistry I Lab 1
- PHY301 Classical Physics for Life Sciences 3
- PHY302 Classical Physics for Life Sciences Lab 1
- BIO343 Anatomy & Physiology 3
- BIO343 Anatomy & Physiology Lab 1
**Total** 16cr

**Spring**
- BCH301 Introduction to Biochemistry 4
- BIO311 Microbiology 3
- BIO312 Microbiology Lab 1
- CHM312 Organic Chemistry II 3
- CHM314 Organic Chemistry II Lab 1
- PHY305 Modern Physics for Life Sciences 3
- PHY306 Modern Physics for Life Sciences Lab 1
**Total** 16cr

#### Year III

**Fall**
- BIO345 Cell & Molecular Biology 4
- BIO— Biology elective 3
- BIO499 Senior Study-Biology 3
- LAC 3
**Total** 13cr

**Spring**
- BIO— Biology elective 3
- BIO331 Ecology 4
- LAC 3
- LAC 3
**Total** 13cr

**Summer Module I and/or Summer Module II**
- ENG/LAC 3
- CSC201 Computer Application 1
- LAC 3
**Total** 7cr
The Chemistry Program at LAU provides a high quality education, to satisfy all the required courses, for a solid 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, and environmental science.

MISSION
The B.S. program in Chemistry parallels the mission of the University in commitment to academic excellence within the framework of a liberal arts tradition. The program seeks to provide students with a broad-based education, which includes exposure to the core areas of chemistry and recently emerging technologies in both classroom setting and in the laboratory. The unique latitude inherent to the chemistry curriculum allows students to develop to well-rounded individuals prepared to face and meet the challenges encountered in their chosen careers and ready to embrace professional and ethical responsibility.

EDUCATIONAL OBJECTIVES
The purpose of the Bachelor of Science in Chemistry is to:

1. Provide students with basic theoretical principles and practical concepts of core chemistry disciplines, and recently emerging technologies.
2. Endow students with proficiency in using the appropriate tools of computer, information technology, basic laboratory techniques, and up to date chemical instrumentation for chemical purposes.
3. Foster student’s critical thinking, communication skills, team work, and research skills.

4. Produce well-rounded student with professional and ethical responsibility prepared to meet challenges encountered in their wide range future career.

LEARNING OUTCOMES
Graduates in the Bachelor of Science in Chemistry will:

1. Demonstrate knowledge of basic principles in chemistry relevant to core fields
2. Translate theoretical principles through practical applied work.
3. Recognize the relevance of chemistry to advancement of science and technology.
4. Demonstrate proficiency in laboratory techniques and modern instrumentation
5. Demonstrate ability to perform chemical analysis, synthesis and identification.
6. Demonstrate the ability to use the power of computers in applications of chemistry.
7. Demonstrate problem-solving skills.
8. Demonstrate ability to criticize and evaluate published information.
9. Demonstrate effective communication of chemical concepts
10. Demonstrate work habits that are ethical and safe in a laboratory, independently and in teams
11. Apply research design, research skills, data analysis and interpretation.
12. Produce an understanding of ethical and professional responsibility as scientist and chemist.
13. Produce life-long independent learners aware of further study and/or careers choices.

CURRICULUM REQUIREMENTS
Students interested in the Bachelor of Science Chemistry Major must complete 92 credits of the following requirements.

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<thead>
<tr>
<th>Liberal Arts Curriculum Requirements (34 credits)</th>
<th>Chemistry Requirements (42 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM201 Chemical Principles 3</td>
<td>CHM202 Analytical Chemistry 3</td>
</tr>
<tr>
<td>CHM203 Qualitative Analysis 2</td>
<td>CHM204 Quantitative Analysis 2</td>
</tr>
<tr>
<td>CHM311 Organic Chemistry I 3</td>
<td>CHM301 Physical Chemistry I 4</td>
</tr>
<tr>
<td>CHM313 Organic Chemistry I Lab 1</td>
<td></td>
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<tr>
<td>CHM312 Organic Chemistry II 3</td>
<td></td>
</tr>
<tr>
<td>CHM314 Organic Chemistry II Lab 1</td>
<td></td>
</tr>
<tr>
<td>CHM330 Physical Chemistry I 4</td>
<td></td>
</tr>
</tbody>
</table>
CHM332  Physical Chemistry II   3
CHM334  Physical Chemistry Laboratory  2
CHM420  Inorganic Chemistry  4
CHM499  Senior Study  3

Elective courses (minimum 6 credits)
Choose two of the following
BCH 301  Introduction to Biochemistry  4
PHA312  Medicinal Chemistry (I)  3
NUT312  Food Chemistry  3
CHM401  Instrumental Analysis  3
CHM402  Chemistry of Materials  3
CHM403  Polymer Science  3
CHM404  Forensic Chemistry  3
CHM405  Statistical Mechanics  3

Elective laboratory course (minimum 2 credits) Choose one of the following
CHM412  Synthesis and Identification of Organic Compounds  2
CHM423  Synthesis and Identification of Inorganic Compounds  2
CHM424  Synthesis and Identification of Nanomaterials  2
CHM425  Computational Chemistry  2

Other Requirements
Mathematics Requirements (6 credits)
MTH201  Calculus III  3

Choose one of the following (3 credits)
MTH301  Linear Algebra  3
MTH303  Numerical Methods  3
MTH304  Differential Equation  3
MTH305  Probability and Statistics  3
STA205  Biostatistics  3

Physics Requirements (7 credits)
PHY201  Electricity and Magnetism  4

Choose one of the following (3 credits)
CIE200  Statics  3
PHY321  Introduction to Modern Physics  3
PHY301  Class. Phys. Life Sci.  3

Free Electives (6 credits)

SUGGESTED THREE-YEAR STUDY PLAN:

Year I
Fall
CHM201  Chemical Principles  3
CHM203  Qualitative Analysis  2
MTH201  Calculus III  3
English (LACC)  3
ARA (LACC)  3
CSC201  Comp Application  1
Total  15cr

Year II
Fall
CHM311  Organic Chemistry I  3
CHM313  Organic Chemistry I L  1
CHM330  Physical Chemistry I  4
MTH  Elective  3
PED2--  Basic Health  1
HLT201  Basic Health  1
Total  15cr

Spring
CHM312  Organic Chemistry II  3
CHM314  Organic Chemistry II L  1
CHM332  Physical Chemistry II  3
CHM334  Physical Chem. Lab.  2
PHY--  Elective  3
Lit. (LAC) Elective  3
Total  16cr

Year III
Fall
CHM420  Inorganic Chemistry  4
CHM  Course elective  3
CHM499  Senior Study  3
Free elective  3
Art (LAC) Elective  3
Total  16cr

Spring
CHM  Course Elective  3
CHM  Lab Elective  2
Art (LAC) Elective ......  3
LAC  Elective  3
Free Electives  3
ETH201  Ethics and Moral Reasoning  1
Total  15cr

BACHELOR OF SCIENCE (B.S.) IN NUTRITION

Nutrition is the application of knowledge about food and its healthy consumption to help people achieve and maintain health in their lives. Dietetics involves helping people meet their nutritional needs in health and disease through diet counseling and nutrition support.
MISSION
The mission of the Nutrition and Dietetics program at LAU is to improve human health in Lebanon and the Middle East region through enhanced nutrition. The department strives to accomplish this mission through the dissemination of knowledge about nutrition, the development of nutritional strategies and the education of practitioners and researchers.

EDUCATIONAL OBJECTIVES
The purpose of the Bachelor of Science in Nutrition is to:

1. Prepare highly qualified entry-level registered dietitians.
2. Provide opportunities and foster participation in research that is related to food and nutrition.
3. Produce graduates committed to life-long learning.
4. Produce graduates with the skills to incorporate new technology, resources and knowledge into practice.

LEARNING OUTCOMES
Student will demonstrate the ability to:

1. Provide nutrition counseling sessions.
2. Communicate in group settings and to provide group presentations.
3. Provide nutrition assessment to individuals with basic and complex medical conditions.
4. Provide comprehensive nutrition care for the patients/client
5. Supervise the production of food and manage sanitation and safety issues.
6. Develop and design menus appropriate to the target population’s health status.
7. Manage the development, modification, and evaluation of recipes and formulas.
8. Implement marketing strategies
9. Participate in public policy to urge consumers and lawmakers to learn about the positive role nutrition plays in healthy lifestyles.
10. Supervise quality improvement initiatives and develop and measure outcomes.
11. Develop and conduct a nutrition related health promotion/disease prevention project.

CURRICULUM REQUIREMENTS
Students must complete a total number of 94 credits. These are broken down to 34 credits of LAC requirements and 60 credits of major and other requirements.

Major Requirements (39 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>NUT201</td>
<td>Fundamentals of Human Nutrition*</td>
<td>3</td>
</tr>
<tr>
<td>NUT301</td>
<td>Community Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>NUT312</td>
<td>Food Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>NUT323</td>
<td>Food Analysis</td>
<td>2</td>
</tr>
<tr>
<td>NUT356</td>
<td>Nutrition Status Assessment</td>
<td>2</td>
</tr>
<tr>
<td>NUT367</td>
<td>Food Processing</td>
<td>2</td>
</tr>
<tr>
<td>NUT345</td>
<td>Industrial Food Production</td>
<td>2</td>
</tr>
<tr>
<td>NUT334</td>
<td>Food Management</td>
<td>3</td>
</tr>
<tr>
<td>NUT378</td>
<td>Food Microbiology</td>
<td>2</td>
</tr>
<tr>
<td>NUT389</td>
<td>Nutrition in Life cycle</td>
<td>3</td>
</tr>
<tr>
<td>NUT401</td>
<td>Advanced Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>NUT423</td>
<td>Medical Nutrition Therapy</td>
<td>4</td>
</tr>
<tr>
<td>NUT445</td>
<td>Counseling Communication Skills</td>
<td>2</td>
</tr>
<tr>
<td>NUT467</td>
<td>Hospital Administration</td>
<td>2</td>
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<tr>
<td>NUT499</td>
<td>Senior Study in Nutrition</td>
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School Requirements (21/27 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIO201</td>
<td>General Biology I</td>
<td>4</td>
</tr>
<tr>
<td>BIO311</td>
<td>Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>BIO343</td>
<td>Anatomy and Physiology</td>
<td>3</td>
</tr>
<tr>
<td>BIO344</td>
<td>Anatomy and Physiology Lab</td>
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<tr>
<td>BCH501</td>
<td>Introduction to Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>CHM201</td>
<td>Chemical Principles*</td>
<td>3</td>
</tr>
<tr>
<td>CHM204</td>
<td>Quantitative Analysis</td>
<td>2</td>
</tr>
<tr>
<td>CHM311</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHM313</td>
<td>Organic Chemistry I Lab</td>
<td>1</td>
</tr>
<tr>
<td>STA205</td>
<td>Biostatistics*</td>
<td>3</td>
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</tbody>
</table>

* These can be taken as part of LAC (Liberal Arts Requirements)

SUGGESTED THREE YEAR STUDY PLAN:

Year I

<table>
<thead>
<tr>
<th>Term</th>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>BIO201</td>
<td>General Biology I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>ENG---</td>
<td>English Course (LAC)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>CHM201</td>
<td>Chemical Principles</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>LAC</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>CHM204</td>
<td>Quantitative Analysis</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PED2--</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>16cr</td>
</tr>
<tr>
<td>Spring</td>
<td>BIO343</td>
<td>Anatomy &amp; Physiology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>BIO344</td>
<td>Anatomy &amp; Physiology LAB</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>CHM311</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>CHM313</td>
<td>Organic Chemistry I Lab</td>
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</tr>
<tr>
<td></td>
<td>NUT 201</td>
<td>Fundamentals of Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>HLT201</td>
<td>Basic Health</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ENG---</td>
<td>English Course (LAC)</td>
<td>3</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>15cr</td>
</tr>
</tbody>
</table>
Nowadays, knowledge of biology is highly attractive as an adjunct to many other majors and professional fields. Combining biology with other area gives a valuable expertise in cross-disciplinary areas and makes academic preparation more distinctive. Pursuing a biology minor program help introducing students to core concepts in biological areas and at the same time complement premedical requirements for students interested in medicine and gives a solid background for those concerned in other health science fields as well as those who wish to pursue careers in the chemical and biochemical industry. With a comprehensive, well-rounded education, student may attain a wider and deeper knowledge and become more competitive in the job market.

**MISSION**

The mission of the Biology Minor is to offer a general but coherent program, providing students with basic knowledge in different fields of Biology.

**EDUCATIONAL OBJECTIVES**

The purpose of the Minor in Biology:

1. To provide students with basic general information in Biology through lecture and laboratory courses.
2. To prepare students interested in pursuing further education in health-related fields such as Medicine, medicinal chemistry, nutrition, public health and medical laboratory.
3. To offer students with wider scope of job opportunities.

**STUDENT LEARNING OUTCOMES**

Students with a Minor in Biology will:

1. Show acquisition of basic knowledge of biological sciences.
2. Demonstrate adequate experience in lab and basic research techniques.
3. Demonstrate problem-solving abilities in biological science.
4. Acquire adequate preparation for careers in biological sciences or entrance into professional studies.

**MINOR IN BIOLOGY**

Summer Module I and/or Summer Module II

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>CSC201</td>
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Year II

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>NUT301 Community Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>NUT312 Food Chemistry</td>
<td>3</td>
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<tr>
<td>ETH201 Food Analysis</td>
<td>2</td>
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<tr>
<td>LAC Arabic</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>15cr</strong></td>
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</table>

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCH301 Introduction to Biochemistry</td>
<td>4</td>
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<tr>
<td>BIO311 Microbiology</td>
<td>3</td>
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<tr>
<td>NUT345 Industrial Food Production</td>
<td>2</td>
</tr>
<tr>
<td>NUT334 Food Management</td>
<td>3</td>
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<tr>
<td>STA205 Biostatistics</td>
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<td><strong>Total</strong></td>
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</table>

Year III

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>NUT401 Advanced Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>NUT356 Nutrition Status Assessment</td>
<td>2</td>
</tr>
<tr>
<td>NUT367 Food Processing</td>
<td>2</td>
</tr>
<tr>
<td>NUT378 Food Microbiology</td>
<td>2</td>
</tr>
<tr>
<td>NUT499 Senior Study in Nutrition</td>
<td>2</td>
</tr>
<tr>
<td>LAC</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15cr</strong></td>
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</table>

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUT389 Nutrition in Life cycle</td>
<td>3</td>
</tr>
<tr>
<td>NUT423 Medical Nutrition Therapy</td>
<td>4</td>
</tr>
<tr>
<td>NUT445 Counseling Communication Skills</td>
<td>2</td>
</tr>
<tr>
<td>NUT467 Hospital Administration</td>
<td>2</td>
</tr>
<tr>
<td>LAC</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14cr</strong></td>
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</table>

**MINOR’S REQUIREMENTS**

Students interested in Minor in Biology must complete the following requirements

**Biology requirement (19 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO201 General Biology I</td>
<td>4</td>
</tr>
<tr>
<td>BIO202 General Biology II</td>
<td>4</td>
</tr>
<tr>
<td>BIO321 Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIO345 Cell and Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>BCH301 Introduction to Biochemistry</td>
<td>4</td>
</tr>
</tbody>
</table>
MINOR IN CHEMISTRY

Chemistry is the basis for many fields of engineering, biology and other sciences. Therefore, a minor in chemistry attempts at teaching students about the relationship between chemistry and the world around them and allows students to gain a broad introduction to the basics of theoretical and applied chemistry. Combining chemistry with other areas gives a valuable expertise in cross-disciplinary areas and makes academic preparation more distinctive. Pursuing a minor in chemistry would widen student’s choices of further studies such as health professional schools, chemical engineering, environmental chemistry and technical chemistry fields including cosmetics, textile and polymers. At the same time, the chemistry Minor complements premedical requirements for students interested in Medicine.

MISSION

The mission of the Chemistry Minor program is to offer a consistent general program, providing students with a supportive environment to learn the general basic principles in chemistry and the different laboratory skills and instrumental techniques.

EDUCATIONAL OBJECTIVES

The purpose of the Minor in Chemistry:

1. To provide students with basic general information in Chemistry through lecture and laboratory courses.
2. To provide students with the ability to work effectively and safely in laboratory environment.
3. To provide student access to modern instrumental analytical techniques and applications.
4. To prepare students interested in pursuing further education in health-professional fields, chemical engineering, technical and industrial chemistry fields, environmental science and scientific communication fields.
5. To offer students with a wider scope of job opportunities.

LEARNING OUTCOMES

Students with a Minor in Chemistry will:

1. Students will successfully show acquisition of basic concepts in chemistry.
2. Students will demonstrate adequate experience in laboratory and instrumental modern techniques.
3. Students will be able to identify and solve applied chemical problems.
4. Students will attain adequate preparation for any career related to chemistry or entrance into professional studies such as health and chemical engineering; and technical advanced fields.

MINOR’S REQUIREMENTS

Students interested in Minor in Chemistry must complete 18 credits of the following:

Core Courses (12 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM201</td>
<td>Chemical Principles</td>
<td>3</td>
</tr>
<tr>
<td>CHM202</td>
<td>Analytical Chemistry</td>
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<tr>
<td>CHM204</td>
<td>Quantitative Analysis</td>
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</tr>
<tr>
<td>CHM311</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHM313</td>
<td>Organic Chemistry I Lab</td>
<td>1</td>
</tr>
</tbody>
</table>

Elective Courses (6 Credits)

Choose two courses out of the following selection

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM312</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHM331</td>
<td>Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>CHM421</td>
<td>Inorganic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHM401</td>
<td>Instrumental Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

MINOR IN ENVIRONMENTAL SCIENCE

The minor in Environmental Science is an interdisciplinary program, which gives students the opportunity to examine environmental issues from a variety of perspectives. The knowledge of environmental science major issues is central to theories and research in chemistry, biology, civil engineering, as well as social science, and public policy.

MISSION

The mission of the environmental science minor is to introduce students to environmental issues by increasing their competence and ability to address and analyze environmental issues, their origins, ramifications, and resolutions.

EDUCATIONAL OBJECTIVES

1. Provide students with an understanding of the social, economic, political and legal
framework of environmental issues
2. Provide students with enough background to be able to collect, analyze and formulate possible solutions to environmental problems.
3. Provide students with understanding of the intertwining effects and impacts of human activities on the world vital natural resources.
4. Better prepare students for the job market.

LEARNING OUTCOMES
1. Understand the underlying concepts and principles associated with environmental science.
2. Identify sources of water, soil and air pollutants.
3. Demonstrate familiarity with the practical/field dimensions of a range of environmental problems and issues.
4. Understand the interrelationships between society, economy and environment.
5. Ability to critically review environmental impact assessment reports.
6. Discuss remediation strategies of a variety of environmental contaminants.
7. Recognize potential harmful role of human being in shaping the environment.

MINOR’S REQUIREMENTS
For a Minor in Environmental Science students must complete a minimum of 18 credits

Core Courses (9 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENV200</td>
<td>Introduction to Environmental Science</td>
<td>3</td>
</tr>
<tr>
<td>ENV 402/</td>
<td>Environmental Policy and Management</td>
<td>3</td>
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<tr>
<td>CIE525</td>
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<tr>
<td>ENV422/</td>
<td>Environmental Impact Assessment</td>
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<tr>
<td>CIE522</td>
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</table>

Elective courses (minimum 9 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CHM340</td>
<td>Environmental chemistry</td>
<td>3</td>
</tr>
<tr>
<td>BIO203*</td>
<td>Introduction to Ecology</td>
<td>3</td>
</tr>
<tr>
<td>ENV423</td>
<td>Environmental Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>CIE424</td>
<td>Water Distribution and Treatment</td>
<td>3</td>
</tr>
<tr>
<td>CIE 520</td>
<td>Solid Waste Management</td>
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</tr>
<tr>
<td>CIE585</td>
<td>Risk and Natural Hazard Management</td>
<td>3</td>
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<tr>
<td>ENV426/</td>
<td>Environmental Remediation</td>
<td>3</td>
</tr>
<tr>
<td>CIE526</td>
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<td></td>
</tr>
<tr>
<td>ENV427</td>
<td>Environmental Physics</td>
<td>3</td>
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</tbody>
</table>

*May replace ENV200 for engineering students only. Also, it can be substituted with BIO 331 (Ecology) for biology students. CIE course are considered as CIE technical electives for civil engineering students.
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.

CURRICULUM REQUIREMENTS

The M.S. in Molecular Biology degree requires a total of 30 credits, comprised of the following requirements: Core graduate courses (9 credits); Elective graduate courses (15 credits); Thesis (6 credits).

I. M.S. Core Courses (9 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO805</td>
<td>Protein Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>BIO806</td>
<td>Genomics Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>BIO822</td>
<td>Advanced Molecular Biology</td>
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</table>

II. M.S. Elective Courses (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO841</td>
<td>Molecular Physiology</td>
<td>3</td>
</tr>
<tr>
<td>BIO820</td>
<td>Applied and Industrial Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>BIO825</td>
<td>Diagnostic Microbiology and Immunology</td>
<td>3</td>
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<tr>
<td>BIO850</td>
<td>Genomics and Proteomics</td>
<td>3</td>
</tr>
<tr>
<td>BIO826</td>
<td>Advances in Cell Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIO829</td>
<td>Endocrinology and Metabolism</td>
<td>3</td>
</tr>
</tbody>
</table>

II. Thesis (6 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO899</td>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

COURSE DESCRIPTIONS

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.

Prerequisites: BIO201 Biology I
Pre or Co-requisite: CHM312 Organic Chemistry II.

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.

BIO200 Basic Biology [3-0, 3 cr.]

This course introduces basic principles of human biology. It focuses on cell and tissue structure and function, classification, evolution, modern genetics and molecular biology. It also provides a brief coverage of organs and systems in relation to diseases.
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.

Prerequisite: BIO201 General Biology I.

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.

BIO203 Introduction to Ecology [3-0, 3 cr.]
This course introduces the organization of individual organisms into populations, communities, and ecosystems. It focuses on the interactions between living organisms and their physical environment. Concepts such as diversity, competition, natural selection, adaptation, climate changes, migration, extinction and deforestation are covered. Additionally the course tackles concepts of environmental microbiology in relation to pollution, remediation and recycling of liquid and solid wastes.

Pre or Co-requisite: BIO311 Microbiology.

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.

Pre-requisite: BIO311 General Biology I.

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.

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.
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<thead>
<tr>
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<tbody>
<tr>
<td>BIO343</td>
<td>Anatomy and Physiology [3-0, 3 cr.]</td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>BIO344</td>
<td>Anatomy and Physiology Lab [0-3, 1 cr.]</td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>BIO345</td>
<td>Cell and Molecular Biology [3-3, 4 cr.]</td>
<td></td>
<td>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, BIO321 Genetics, and CHM312 Organic Chemistry II, or the consent of the Instructor.</td>
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<tr>
<td>BIO401</td>
<td>Developmental Biology [3-0, 3 cr.]</td>
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<td>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.</td>
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<tr>
<td>BIO410</td>
<td>Biotechnology [2-3, 3 cr.]</td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>BIO420</td>
<td>Virology and Immunology [2-3, 3 cr.]</td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>BIO499</td>
<td>Senior Study [3-3, 3 cr.]</td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>BIO805</td>
<td>Protein Research Methods [1-6, 3 cr.]</td>
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<td>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.</td>
</tr>
</tbody>
</table>
| 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, microsatellite typing, DNA sequencing, DNA subcloning coupled with bacterial transformation, transcriptional expression techniques using galactosidase reporter gene assays, and identification of bacterial species using the Biolog®System.

**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.

**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.

**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, radioligand assay, gas-liquid chromatography, high performance liquid chromatography, mass spectrometry, time-resolved immunofluorescence, nucleic acid probes in clinical diagnostics, and diagnostic virology and parasitology.

**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.

**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.

**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.

**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.

**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.

**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.
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.

CHM200 Essentials of Chemistry [3-0, 3 cr.]
This is one semester course for health science students. The course is an introduction to basic concepts of general, organic and biochemistry, and basic nuclear chemistry. The course includes basic: stoichiometric chemical calculations, bonding concepts, solution chemistry, acid/base and redox reactions, basic nuclear reactions, organic compounds properties, structure and reactivity of hydrocarbons, alcohols, ethers, carbonyls, carboxylic acids, amines, carbohydrates, amino acids, lipids enzymes and biochemical energy.

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, solids and liquids; solutions; 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, alkyl halides and alcohols with an emphasis on mechanistic and stereochemical 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, recrystallization, 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 lab course that utilizes the techniques learned in CHM313, in order to synthesize and study the properties and reactivities of functional groups. Nitrification of aromatic compounds, aldol condensation, Diels-Alder reaction and Friedel Crafts acylation. In addition, the synthesis of dyes and natural products are among the experiments done in this laboratory.
Prerequisites: CHM312 Organic Chemistry II or concurrently, CHM313 Organic Chemistry I Lab.

CHM330 Physical Chemistry I [4-0, 4 cr.]
This course covers the basic principles of chemical thermodynamics and chemical dynamics; including heat, work and energy; the three laws of thermodynamics and their application to chemical systems and thermodynamic solutions, kinetic theory of gases, rate law, mechanism, Bodenstein approximation, fast reactions, photochemistry, and reaction rate theories.
Prerequisites: MTH201 Calculus III, CHM201 Chemical Principles

CHM332 Physical Chemistry II [3-0, 3 cr.]
This is a course that covers Quantum theory, postulates, Schrödinger equation of hydrogen, H+2 and H2, atomic and molecular orbitals, Huckel approximation, and atomic and molecular spectra.
Prerequisites: CHM201 Chemical Principles and MTH201 Calculus III

CHM334 Physical Chemistry Laboratory [0-4, 2 cr.]
This is a laboratory course that covers principles and experimental techniques in thermochemistry, kinetic, and electrochemistry.
Prerequisites: CHM202 Analytical Chemistry.

CHM340 Environmental Chemistry [3-0, 3 cr.]
This course is a study of natural and non-natural chemical substances in the environment and their chemical transformations. It involves chemistry of energy resources, atmosphere, hydrosphere, biosphere, and lithosphere (natural and in polluted environment). Principles of chemical reactions, chemical equilibrium and reaction kinetics are applied in this course. Other covered topic is waste treatment and chemical processes. Parallel with these is learning the methods of environmental chemical analysis.
Prerequisite: Junior standing

CHM401 Instrumental Analysis [1-4, 3 cr]
This course is an introduction to modern-physical-chemical methods of analysis, with theoretical concepts of instrumentation.
Department of Natural Sciences

and applications, including emission and absorption spectroscopy, nuclear magnetic resonance spectroscopy, and chromatography.

Prerequisites: CHM 202 Analytical Chemistry, CHM204 Quantitative Analysis

CHM402 Chemistry of Materials [3-0, 3 cr.]
This course is an introduction to the materials of emerging technologies as explored in the chemistry of the solid-state, conducting, semiconducting, inorganic and organic materials, nanomaterials, as well as the design, preparation, processing and array of characterization methods for material performance.

Prerequisite: CHM201 Chemical Principles.

CHM403 Polymer Science [3-0, 3 cr.]
This course is an introduction to Polymer Science involving classification of polymers, preparative methods of polymerization, characterization, mechanical properties, fabrication techniques, thermodynamics and kinetics of polymers, commercial importance and applications.

Prerequisites or Co-requisite: CHM312 Organic Chemistry II

CHM404 Forensic Chemistry [2-3, 3 cr.]
This course is a general overview of the fundamental principles, methods, and instrumentation involved in the forensic analysis of physical evidence such as hair, fiber, bodily fluids, glass, paint, soil, finger prints, and documents. The laboratory applies the learned methodologies.

Prerequisites: CHM202 Analytical Chemistry

CHM405 Statistical Mechanics [3-0, 3 cr.]
This course involves probability laws and distribution, statistical mechanics, postulates, fundamental equations, statistical mechanics calculations, Bose-Einstein statistics, transition state theory, as well as isotope effect from statistical perspective.

Prerequisite: CHM330 Physical Chemistry I.

CHM412 Synthesis and Identification of Organic Compounds [0-4, 2 cr.]
This course is an experimental chemistry course that explores synthetic transformation, separation and identification of organic compounds by wet chemical techniques, spectroscopic tools, elemental analyzer and NMR.

Prerequisites: CHM314 Organic Chemistry II Lab

CHM420 Inorganic Chemistry [4-0, 4 Cr.]
This course is a study of hydrogen-like orbitals, multi-electron atoms, ionic bonding and crystals, symmetry point groups, symmetry adapted orbitals, Berry pseudo-rotation, fluxional molecules, acids and bases, chemistry of the main group elements, coordination compounds and organometallic compounds.

Prerequisites: CHM201 Chemical Principles

CHM423 Synthesis and Identification of Inorganic Compounds [0-4, 2 cr.]
This course is an experimental chemistry course that explores a wide variety of synthetic methodologies and characterization techniques of inorganic compounds such as main group, transition metals and organometallics. Several characterization techniques are used to analyze the synthesized products such as conventional spectroscopy, magnetic susceptibility, thermal analysis and XRD. The special laboratory skills of air-free manipulation of chemicals will also be introduced.

Prerequisite or co-requisite CHM420 Inorganic Chemistry

CHM424 Synthesis and Characterization of Nanomaterials [0-4, 2 cr.]
This course is an experimental course that explores a wide variety of synthetic and characterization techniques for nanomaterials using advanced instrumental techniques such as AA, SEM and XRD.

Prerequisites or co-requisite CHM402 Chemistry of Materials

CHM425 Computational Chemistry [0-4, 2 cr.]
This is a laboratory course that introduces students to computer methods and software used in computational chemistry. Emphasis is on quantum computer simulation methods including molecular orbital methods and density functional theory; statistical calculations; molecular dynamics and Monte Carlo; and Newton-Raphson techniques in solving thermodynamic equations.

Prerequisites:CHM330 Physical Chemistry I, CHM332 Physical Chemistry II
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.

ENVIRONMENTAL SCIENCE
ENV200 Introduction to Environmental Science [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.

ENV 402/CIE525 Environmental Policy and Management [3-0, 3 cr.]
This course explores human made problems in the environment parallel with concepts in environmental ethics, management and policies so as solutions are provided concerning preservation of the environment. Topics covered are toxic and solid wastes, pollution of air, water, food and soil, international and national environmental ethics, management and policies. Prerequisite: senior standing

ENV422/CIE722 Environmental Impact Assessment [3-0, 3 cr.]
This course is the study and evaluation of the impacts of large scale projects on the quality of the physical, biological, and socio-economical environment taking into account environmental laws and regulations and EIA guidelines. Identification of impacts, quantification methods, mitigation measures, and monitoring plans. Case study involving the preparation of an EIA REPORT. Prerequisite consent of instructor or senior standing.

ENV423 Environmental Microbiology [2-3, 3 cr.]
This ecologically based course discusses the relationship of microorganisms with one another and with their environment. It stresses the three major domains of life – Eucaryota, Archaea and Bacteria and studies their diversity, interactions and physiology in their natural environments. Biodegradation of organic matter, bio-geo-cycling of minerals and waste bio-treatment are emphasized. The course also deals with metagenomic, metaproteomic techniques and applications as well as the use of microarrays in Microbial Ecology.

ENV426/CIE526 Environmental Remediation [3-0, 3 cr.]
This course deals with processes employing microorganisms, fungi, plants or their enzymes to return contaminated environments, such as polluted waters and soils, to their natural conditions. The control, optimization and monitoring of bioremediation is discussed as well as the environmental factors and microbial populations involved. In-situ, ex-situ applications and genetic engineering approaches are emphasized. Prerequisite: senior standing

ENV427 Environmental Physics [3-0, 3 cr.]
The course comprises aspects of atmospheric physics, soil physics and many aspects of applied physics. It introduces the essentials in environmental physics, and describes the basics in environmental spectroscopy e.g. black body radiation and the solar UV and Life. It also addresses the global climate, energy balance, energy available for human use, transport of pollutants, and noise pollution. The course also discusses risk estimations, energy saving and nature and future thinking in the context of the global society.

HEALTH
HLT201 Basic Health [1-0, 1 cr.]
This course covers the basic knowledge of general health and fitness, first aid, nutrition, mental health, disease, drugs, tobacco, and sex education.

NUTRITION
NUT201 Fundamentals of Human Nutrition [3-0, 3 cr.]
This course is an introduction to human nutrition, and its relation to health. The essentials of an adequate diet, sources of nutrients, and how to meet nutritional needs of various age groups are included.

NUT301 Community Nutrition [3-0; 3 Cr]
This course deals with methods used to discover nutritional problems in the community and the different strategies and education programs that may be implemented in order to improve the nutritional status and health.
Prerequisite: NUT201 Fundamentals of Human Nutrition
NUT312 Food Chemistry [3-0; 3 Cr]
This course is designed to cover the chemical composition, physical and sensory properties of food.
Prerequisite: CHM311 Organic Chemistry I

NUT323 Food Analysis [1-3; 2 Cr]
This course includes application of methodologies used in assessment of chemicals and nutrients in food.
Prerequisites: CHM204 Quantitative analysis, CHM313 Organic chemistry I lab
Pre or corequisite: NUT312 Food chemistry

NUT334 Food Management [3-0; 3 Cr]
This course is designed to get an overview of the principles of functional operation of food services such as menu planning, purchasing and procurement, production, distribution and service, quality improvement, and layout and design. Emphasis will also be made on the HACCP approach.
Prerequisite: NUT201 Fundamentals of Human Nutrition

NUT345 Industrial Food Production [2-0; 2 Cr]
This course is designed to cover aspects of industry. It includes visits to different plants of food production and food industry. Students will be asked to write reports and discussions about the different visits.
Prerequisite: NUT334 Food Management

NUT356 Nutrition status Assessment [1-3; 2 Cr]
This course covers all theoretical aspects of nutritional status assessments such as anthropometric measurement, dietary assessment and screening, medical record reviews, care plan development and biochemical tests. Also, students will be exposed to practical experiments that make them familiar with the studied tools and techniques.
Prerequisite: Fundamentals of human nutrition
Pre or corequisite: NUT401 Advanced Human Nutrition

NUT367 Food Processing [1-3; 2 Cr]
This course covers changes observed in basic food constituents during food processing and preparation. It also deals with the different methods and principles of food processing, preservation and possible food spoilage. The course includes laboratory applications of food processing.
Prerequisite: BCH301 Introduction to Biochemistry

NUT378 Food microbiology [1-3; 2 Cr]
This course covers all aspect of food preservation from microbiological contamination, detection of microbial food contamination and possible beneficial utilization of microorganisms in food industry.
Prerequisite: BIO311 Microbiology

NUT389 Nutrition in the Life cycle [3-0; 3 Cr]
This course is designed to cover all aspects of basic nutritional needs throughout the human life cycle: infancy, childhood, adolescence, adulthood, elderly people and the special requirements during pregnancy and lactation.
Prerequisite: NUT201 Fundamentals of Human Nutrition

NUT401 Advanced Human Nutrition [3-0; 3 Cr]
This course includes the latest advances in carbohydrate, protein, lipid, vitamin and mineral nutrition and metabolism in the human body.
Prerequisites: Fundamentals of human nutrition, Human anatomy and physiology, Prerequisite: BCH301 Introduction to Biochemistry

NUT423 Medical Nutrition Therapy [3-3; 4 Cr]
This course deals with the pathology, treatment and nutritional therapy of acute and chronic diseases. It is also designed to consider and discuss clinical case studies and reports of patients with different pathologic conditions.
Prerequisites: NUT401 Advanced Human Nutrition, NUT356 Nutrition Status Assessment

NUT445 Counseling Communication Skills [2-0; 2 Cr]
This course focuses on the necessary techniques used in collection and interpretation
of dietary intake in addition to patient care and counseling in order to promote the required dietary changes.

Prerequisite: NUT356 Nutrition Status Assessment

NUT 467 Hospital Administration [3-0, 3cr]
The main purpose of this course is to prepare students to carry out a wide range of administrative, managerial and nutrition-related tasks within hospital institutes. The final goal is to achieve strong theoretical and technical comprehension on how to provide quality nutrition and healthcare to hospital patients.

Prerequisite: Senior Standing

NUT499 Senior Study in Nutrition [1-6, 3cr]
This course is a well-designed research project in current hot nutritional topics during which the student will be familiarized with the latest research techniques and tools.

Prerequisite: Senior Standing

PHYSICAL EDUCATION
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...

PED220 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.

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, electrical 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 [3-0, 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 Planck’s Constant and Atomic Spectroscopy.

Pre- or Co-requisite: PHY305 Modern Physics for Life Sciences.

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.
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 main 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 entry level 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, government, and non-governmental institutions.
2. Acquire entry level skills for careers in government, journalism, international organizations, legal professions, research, advertising agencies, and any of the business enterprises and proliferating organizations that maintain political and economic activities.
3. Attain 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. Use research skills to foster scholarship and prepare students for graduate study.
5. Contextualize the material learned by outreach and community involvement with faculty supervision.
6. Integrate the cultural, social, legal, and ethical issues inherent in the discipline of political science, and international affairs, into their undergraduate education.

LEARNING OUTCOMES
Graduates in the Bachelor of Arts program in Political Science will:

1. Identify 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.
Department of Social Sciences

2. Use theoretical and methodological tools essential for higher-level intellectual pursuits.
3. Examine the major issues pertaining to this field of study, and identify problems, conceptualize ideas, and communicate solutions, in various situations that emerge at the workplace.

CURRICULUM REQUIREMENTS
Students majoring in Political Science should meet the Liberal Arts curriculum requirements, all courses in the major, and the three courses listed under “Other Requirements.” They need 92 credits for the major (34 credits Liberal Arts Curriculum, 42 credits for the major, 9 credits for the other requirements, and 16 credits of Free Electives).

Liberal Arts Curriculum Requirements (34 credits) Please see new improved plan below in color. The new plan replaces this one.

Major Requirements (42 credits)

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>POL201</td>
<td>Introduction to Political Science</td>
<td>3</td>
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<tr>
<td>POL221</td>
<td>Comparative Governments of Major Powers</td>
<td>3</td>
</tr>
<tr>
<td>POL312</td>
<td>Politics of Developing Areas</td>
<td>3</td>
</tr>
<tr>
<td>POL321</td>
<td>American Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>POL313</td>
<td>Concepts of International Relations</td>
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<td>POL331</td>
<td>International Organization</td>
<td>3</td>
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<tr>
<td>POL323</td>
<td>Middle East Governments and Politics</td>
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<td>POL421</td>
<td>The Middle East in International Affairs</td>
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<td>POL211</td>
<td>History of Political Thought I</td>
<td>3</td>
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<td>POL212</td>
<td>History of Political Thought II</td>
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<td>POL311</td>
<td>Methodology and Political Analysis</td>
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<td>POL332</td>
<td>Public International Law</td>
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<td>POL499</td>
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Other Requirements (9 credits)

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<td>POL202</td>
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<td>ECO202</td>
<td>Macroeconomics</td>
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<tr>
<td>HST311</td>
<td>World History in the Twentieth Century</td>
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Free Electives (16 credits)

SUGGESTED THREE YEAR STUDY PLAN

Year One

Fall (12 credits)

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Spring (15 credits)

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<td>POL 332</td>
<td>Public International Law</td>
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<tr>
<td>ECO 202</td>
<td>Macroeconomics</td>
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<td>HST 311</td>
<td>Contemporary Europe</td>
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<td>MGT 201</td>
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Summer (5 credits)

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Year Two

Fall (15 credits)

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<td>POL 331</td>
<td>International Organization</td>
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<tr>
<td>ECO 311</td>
<td>(D&amp;C/D&amp;I)/ECO 321 (C&amp;I)*</td>
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Spring (12 credits/15 credits for D&I)

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<td>HST 312</td>
<td>Europe and ME</td>
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<td>ECO 321</td>
<td>(D&amp;I)*</td>
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Summer (6 credits)

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<td>LA Elective</td>
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Year Three

Fall (15 credits/12 credits for D&I)

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>POL 311</td>
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<tr>
<td>POL 313</td>
<td>(D&amp;C/C&amp;I)</td>
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<tr>
<td>POL 431</td>
<td>International Organizations</td>
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<tr>
<td>POL 433</td>
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<td>HLT 201</td>
<td>Basic Health</td>
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<td>CSC 201</td>
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Spring (12 credits)

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>POL 499</td>
<td>Senior Study</td>
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<td>POL 421</td>
<td>M.E. in International Affairs</td>
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<td></td>
<td>LA Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Free Electives</td>
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</tbody>
</table>

* D&I: Devel. St./Int. Econ.  
* C&I: Cons. & Dip. Serv./Intl. Econ.  
* D&C: Devel. St./Cons. & Dip. Serv.
BACHELOR OF ARTS (B.A.) IN POLITICAL SCIENCE – INTERNATIONAL AFFAIRS

MISSION
Basing itself on the University’s mission, the Bachelor of Arts program in Political Science-International Affairs provides students with a high quality education that covers the main 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.

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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, government and non-governmental institutions.
2. Acquire entry level skills for careers in government, journalism, international organizations, legal professions, research, advertising agencies and any of the business enterprises and proliferating organizations that maintain political and economic activities.
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1. Identify 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. Use theoretical and methodological tools essential for higher-level intellectual pursuits.
3. Examine the major issues pertaining to this field of study, and identify problems, conceptualize ideas, and communicate solutions, in various situations that emerge at the working place.

Students majoring in Political Science/International Affairs should meet the Liberal Arts curriculum requirements, all courses in the major, and the three courses listed under “Other Requirements.” They need 92 credits for the major (34 credits from the Liberal Arts curriculum, 36 credits for the major, 9 credits from other requirements, 12 credits in an emphasis area, and 10 credits of free electives).

Liberal Arts Curriculum Requirements (34 credits)

<table>
<thead>
<tr>
<th>Major Requirements (42 credits)</th>
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<tbody>
<tr>
<td>ECO201 Microeconomics</td>
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<tr>
<td>ECO202 Macroeconomics</td>
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<tr>
<td>MGT201 Intro to Management</td>
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</tr>
<tr>
<td>POL201 Intro to Political Science</td>
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</tr>
<tr>
<td>POL202 Lebanese Politics and Administration</td>
<td>3</td>
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<td>POL221 Comp. Govt. of Major Powers</td>
<td>3</td>
</tr>
<tr>
<td>POL311 Methodology &amp; Political Analysis</td>
<td>3</td>
</tr>
<tr>
<td>POL331 International Organization</td>
<td>3</td>
</tr>
<tr>
<td>POL332 Public International Law</td>
<td>3</td>
</tr>
<tr>
<td>POL421 M.E. in International Affairs</td>
<td>3</td>
</tr>
<tr>
<td>POL431 International Regional Organizations &amp; Agencies</td>
<td>3</td>
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<tr>
<td>POL499 Senior Study-Political Science</td>
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<table>
<thead>
<tr>
<th>Other Requirements (9 credits)</th>
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<tbody>
<tr>
<td>HST305 Contemporary Europe 1945-1989</td>
<td>3</td>
</tr>
<tr>
<td>HST312 Europe &amp; M.E. in 19th &amp; 20th Centuries</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>Choose ONE of the following courses (3 Credits)</th>
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<tbody>
<tr>
<td>ECO401 International Economics</td>
<td>3</td>
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<tr>
<td>POL432 Diplom. &amp; Consular Service</td>
<td>3</td>
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<tr>
<td>POL433 UN System &amp; Problems of Development</td>
<td>3</td>
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Choose one of the following areas (12 credits)

A. Developmental Studies/International Economics (12 credits)

<table>
<thead>
<tr>
<th>Liberal Arts Curriculum Requirements (34 credits)</th>
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<tbody>
<tr>
<td>ECO311 Economic Development</td>
<td>3</td>
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<tr>
<td>ECO321 Monetary Theory and Policy</td>
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</tr>
<tr>
<td>ECO422 Public Finance and Fiscal Policy</td>
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<tr>
<td>POL312 Politics of Developing Areas</td>
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or
Department of Social Sciences

**B. Consular & Diplomatic Service**
Developmental Studies (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ECO321</td>
<td>Monetary Theory and Policy</td>
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<td>ECO422</td>
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<td>POL313</td>
<td>Concepts International Relations</td>
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</tr>
<tr>
<td>POL322</td>
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or

**B. Consular & Diplomatic Service/International Economics (12 credits)**

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<tbody>
<tr>
<td>ECO311</td>
<td>Economic Development</td>
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**Free Electives (10 credits)**

**SUGGESTED THREE YEAR STUDY PLAN**

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<tr>
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<td>Remedial English course</td>
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<td>Macro Economics</td>
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<td>HST 305</td>
<td>Contemporary Europe</td>
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<tr>
<td>MGT201</td>
<td>Intro. to Management</td>
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**Summer (5 credits)**

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**Year Two**

**Fall (15 credits)**

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<td>HST312</td>
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**Year Three**

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<tbody>
<tr>
<td>POL432/ POL433 or ECO401</td>
<td>LA Elective</td>
<td>3</td>
</tr>
<tr>
<td>POL 431</td>
<td>International Organizations</td>
<td></td>
</tr>
<tr>
<td>ECO312/ECO321/ECO322</td>
<td>LA Elective</td>
<td>3</td>
</tr>
<tr>
<td>HLT 201</td>
<td>Basic Health</td>
<td>1</td>
</tr>
<tr>
<td>CSC 201</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Free Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

**Spring (12 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 499</td>
<td>Senior Study</td>
<td></td>
</tr>
<tr>
<td>POL 421</td>
<td>M.E. in International Affairs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LA Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Free Electives</td>
<td>3</td>
</tr>
</tbody>
</table>

**BACHELOR OF ARTS IN PSYCHOLOGY**

**MISSION**

The BA program in Psychology provides students with a broad based knowledge in the field of Psychology along with opportunities to explore their professional potential in a university committed to academic excellence, scholarship, and to the education of students as future leaders in the local and international sphere. Students will be provided with a foundational grounding in scientific psychology in diverse subfields, with some emphasis in the fields of Development and Counseling.

**PROGRAM OBJECTIVES**

The general objectives of the program are in line with the American Psychological Association’s guidelines for undergraduate psychology Majors. Students in the program are expected to:

1. Acquire a knowledge base in Psychology
2. Equip students with data research analysis skills.
3. Develop skills in critical and creative thinking, skeptical inquiry, all of which require tolerance for ambiguity.
4. Apply psychological principles across cultural and sub-cultural contexts.
5. Weigh evidence, suspend judgment, act ethically, and reflect upon and evaluate the values underlying psychology.
6. Demonstrate competence in using computers and information technology for psychology purposes.
7. Develop insights into their own and other's behavior and mental processes
8. Emerge with realistic ideas about how to use their degree effectively in Lebanon
9. Be able to pursue advanced studies.

STUDENT LEARNING OUTCOMES

Upon successful completion of the program students should be able to:

1. Demonstrate familiarity with the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology
2. Acquire and use the skills of critical and creative thinking in scientific research in Psychology
3. Apply the research skills, of research design, data analysis, and interpretation in the field while adhering to professional ethics.
4. Communicate effectively using APA writing style
5. Demonstrate knowledge and skills to pursue graduate studies in psychology or a related field.
6. Communicate effectively in both oral and written formats.
7. Apply the use of information technology
8. Demonstrate the relationship of psychological principles to culture.

Students must complete 92 credits (excluding freshman requirements) for the major of which 34 credits are from the Liberal Arts Curriculum, (including 3 credits applied statistics) 45 in psychology credits and 10 credits in the Free Electives.

<table>
<thead>
<tr>
<th>Total Credits(92 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Core requirements (see below)</td>
</tr>
<tr>
<td>Psychology electives out of 24 PSY. CR</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>Liberal Arts Core Curriculum *</td>
</tr>
<tr>
<td>LAC Electives</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>STA202 Applied Statistics (no more part of LAC)</td>
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<tr>
<td>Free Electives</td>
</tr>
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</table>

**Major Requirements (30 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 201</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 422</td>
<td>Development across the Life Span</td>
<td>3</td>
</tr>
<tr>
<td>PSY 422</td>
<td>Psychology of Learning</td>
<td>3</td>
</tr>
<tr>
<td>PSY 422</td>
<td>Research Methods I</td>
<td>3</td>
</tr>
<tr>
<td>PSY 422</td>
<td>Research Methods II (prerequisite Research M ethods I)</td>
<td>3</td>
</tr>
<tr>
<td>PSY 425</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 322</td>
<td>Mind &amp; Behavior</td>
<td>3</td>
</tr>
<tr>
<td>PSY 335</td>
<td>Biological Basis of Behavior</td>
<td>3</td>
</tr>
<tr>
<td>PSY 335</td>
<td>Counseling Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 499</td>
<td>Psychology Senior Study</td>
<td>3</td>
</tr>
</tbody>
</table>

* Potential courses: psychology of gender, positive psychology, cultural psychology, motor development, psychology in the community, human sexuality, Eating disorders...etc.

**Psychology Electives (Choose 5 courses or 15 credits, out of 9 courses or 27 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 202</td>
<td>Child Psychology</td>
</tr>
<tr>
<td>PSY 203</td>
<td>Psychology of Youth</td>
</tr>
<tr>
<td>PSY 204</td>
<td>Social Psychology</td>
</tr>
<tr>
<td>PSY 311</td>
<td>Exceptional Child</td>
</tr>
<tr>
<td>PSY 320</td>
<td>Theories of Personality</td>
</tr>
<tr>
<td>PSY 325</td>
<td>Industrial Organizational Psychology</td>
</tr>
<tr>
<td>PSY 498</td>
<td>Topics in Psychology</td>
</tr>
</tbody>
</table>

**Free Electives (16 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 202</td>
<td>Child Psychology</td>
</tr>
<tr>
<td>PSY 203</td>
<td>Psychology of Youth</td>
</tr>
<tr>
<td>PSY 204</td>
<td>Social Psychology</td>
</tr>
<tr>
<td>PSY 311</td>
<td>Exceptional Child</td>
</tr>
<tr>
<td>PSY 320</td>
<td>Theories of Personality</td>
</tr>
<tr>
<td>PSY 325</td>
<td>Industrial Organizational Psychology</td>
</tr>
<tr>
<td>PSY 498</td>
<td>Topics in Psychology</td>
</tr>
</tbody>
</table>
# SUGGESTED THREE YEAR STUDY PLAN

## Year One

### Fall (17 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 201</td>
<td>Introduction to Psychology (core)</td>
</tr>
<tr>
<td>PSY 234</td>
<td>Development across the lifespan (core &amp; new)</td>
</tr>
<tr>
<td>STA 202</td>
<td>Applied Statistics</td>
</tr>
<tr>
<td>ARA 2/3..</td>
<td></td>
</tr>
<tr>
<td>CSC 201</td>
<td>Computer applications</td>
</tr>
<tr>
<td>PED</td>
<td>Physical Education</td>
</tr>
<tr>
<td></td>
<td>Remedial English if any</td>
</tr>
<tr>
<td>Free Elective</td>
<td></td>
</tr>
</tbody>
</table>

### Spring (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 295</td>
<td>Theories of learning core (previously PSY 422)</td>
</tr>
<tr>
<td></td>
<td>prerequisite PSY 201</td>
</tr>
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</table>

## Year Two

### Fall (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 345</td>
<td>Research Methods II</td>
</tr>
<tr>
<td>PSY 355</td>
<td>Biological Basis of behaviour (core &amp; new)</td>
</tr>
<tr>
<td></td>
<td>Prerequisite PSY 201</td>
</tr>
</tbody>
</table>

### Choose one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 320</td>
<td>Theories of Personality</td>
</tr>
</tbody>
</table>

### Or

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 311</td>
<td>Exceptional Child - Prerequisite PSY 201</td>
</tr>
</tbody>
</table>

### Or

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 203</td>
<td>Psychology of Youth</td>
</tr>
<tr>
<td>ENG 203</td>
<td>Fund. Of Oral Communication</td>
</tr>
<tr>
<td></td>
<td>LAC Elective</td>
</tr>
</tbody>
</table>

### Spring (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 322</td>
<td>Mind and Behavior (core)</td>
</tr>
<tr>
<td>PSY 422</td>
<td>Psychology of learning (core)</td>
</tr>
<tr>
<td>PSY 425</td>
<td>Abnormal Psychology - Prerequisite PSY 201 (core)</td>
</tr>
</tbody>
</table>

## Year Three

### Fall (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 466</td>
<td>Counselling Psychology (core &amp; new)</td>
</tr>
<tr>
<td></td>
<td>Prerequisite PSY 435</td>
</tr>
</tbody>
</table>

### Choose one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective</td>
<td></td>
</tr>
<tr>
<td>PSY 498</td>
<td>Topics in Psychology</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
</tr>
</tbody>
</table>

### Or

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 267</td>
<td>Cultural Psychology (new)</td>
</tr>
<tr>
<td></td>
<td>LAC Elective</td>
</tr>
<tr>
<td></td>
<td>Free Elective</td>
</tr>
</tbody>
</table>

### Spring (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 499</td>
<td>Senior Study Prerequisite Senior Standing and PSY</td>
</tr>
<tr>
<td></td>
<td>204 Social Psychology (core)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any Psychology Elective</td>
</tr>
<tr>
<td></td>
<td>LAC Elective</td>
</tr>
<tr>
<td></td>
<td>Free Elective</td>
</tr>
</tbody>
</table>

### Summer (4 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 202</td>
<td>Sophomore Rhetoric</td>
</tr>
<tr>
<td>ETH 201</td>
<td>Moral Reasoning</td>
</tr>
</tbody>
</table>

### Summer (4 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAC Elective</td>
<td></td>
</tr>
<tr>
<td>HLT 201</td>
<td>Basic Health</td>
</tr>
</tbody>
</table>

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*Lebanese American University | page 192*
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 group 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:

1. Provide students with foundational knowledge in the field and to allow them to use bio-psychosocial development across the life span, with an integrative multidimensional approach.
2. Instil in students the skills for assessing the social functioning of individuals and families, and design appropriate intervention strategies.
3. Contextualize the knowledge learned with the issues of practice.
4. Apply social work principles with client systems, including families.
5. Prepare graduates to work with diverse populations.
6. Recognize the social contexts of social work practice and the changing nature of those contexts,
7. Demonstrate the values and ethics that guide the profession social workers
8. Prepare graduates who are aware of their professional responsibility for continued professional growth.

STUDENTS 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. Demonstrate professional attitudes towards diverse populations and value the culture and sub-culture of various groups.

Students majoring in Social Work must complete 92 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, and/or for careers in social work, based on the local and regional market demands.

Major Core Requirements (21 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC301</td>
<td>Introduction to Social Work</td>
<td>3</td>
</tr>
<tr>
<td>SOC313</td>
<td>Family and Child Welfare</td>
<td>3</td>
</tr>
<tr>
<td>SOC402</td>
<td>Social Work Intervention I</td>
<td>3</td>
</tr>
<tr>
<td>SOC403</td>
<td>Social Work Intervention II</td>
<td>3</td>
</tr>
<tr>
<td>SOC404</td>
<td>Social Work Practicum I</td>
<td>3</td>
</tr>
<tr>
<td>SOC405</td>
<td>Social Work Practicum II</td>
<td>3</td>
</tr>
<tr>
<td>SOC499</td>
<td>Social Work Senior Study</td>
<td>3</td>
</tr>
</tbody>
</table>

Social Science Requirements (18 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC201</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC311</td>
<td>Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>SOC321</td>
<td>Sociology of the Arab World</td>
<td>3</td>
</tr>
<tr>
<td>PSY201</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY204</td>
<td>Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY311</td>
<td>The Exceptional Child</td>
<td>3</td>
</tr>
</tbody>
</table>

Free Electives (19 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>English course(based on the EEE score)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>HLT201 Basic Health</td>
<td>1</td>
</tr>
</tbody>
</table>

SUGGESTED THREE YEAR STUDY PLAN

Year One

Fall (14 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC201</td>
<td>Intro to Sociology</td>
<td></td>
</tr>
<tr>
<td>SOC301</td>
<td>Intro to Social Work</td>
<td></td>
</tr>
<tr>
<td>ARA2/-3-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSC201</td>
<td>Computer Applications</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>English course(based on the EEE score)</td>
<td></td>
</tr>
<tr>
<td>HLT201</td>
<td>Basic Health</td>
<td>1</td>
</tr>
</tbody>
</table>

Spring (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY201</td>
<td>Intro to Psychology</td>
<td></td>
</tr>
<tr>
<td>SOC313</td>
<td>Family &amp; Child Welfare</td>
<td></td>
</tr>
<tr>
<td>ENG102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ETH201</td>
<td>Moral Reasoning</td>
<td>1</td>
</tr>
<tr>
<td>PED-</td>
<td>Physical education</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Free Elective</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Free Elective</td>
<td></td>
</tr>
</tbody>
</table>
Year Two

Fall (15 credits)

SOC402 Social Work Intervention I
PSY204 Social Psychology
SOC311 Social Problems
PSY311 Exceptional Child
ENG202 Sophomore Rhetoric

Spring (18 credits)

SOC403 Social Work Intervention II
LAC Elective
ENG203 Fundamentals of Oral Science
LAC Elective
Free Elective
Free Elective

Year Three

Fall (18 credits)

SOC321 Sociology of the Arab World
SOC404 Practicum I
LAC Elective
LAC Elective
Free Elective
Free Elective

Spring (15 credits)

SOC499 Senior Study-Social Work
SOC405 Practicum II
LAC Elective
LAC Elective
Free Elective

Number of credits to be taken by Social Work major students:
* Pre-freshman and Freshman English: English 101 and English 102
1. Liberal Arts Core Curriculum: 13 credits
2. LAC Electives: 21 credits
3. Major Core Requirements: 21 credits
4. Social Sciences Requirements: 18 credits
5. Free Electives: 19 credits

EDUCATIONAL OBJECTIVES

1. Introduce the students to the field of legal studies.
2. Provide a legal studies background for students majoring in many disciplines, such as Political Science, Psychology, Social Work, Business, etc.
3. Help students obtain a better understanding of law and the multiple functions it plays in a variety of societies.
4. Prepare the students for the job market by adding a competitive edge to their majors through a minor in legal studies.

LEARNING OUTCOMES

5. Apply complex system of law and regulations in different situations and contexts.
6. Identify creatively and independently major issues in legal studies.
7. Apply these skills to identify problems, conceptualize ideas and communicate solutions in various situations that emerge in the working place.
8. Interpret through legal reasoning different kinds of evidence through consideration of the concepts of rights and justice in any legal system.

REQUIREMENTS

For a Minor in Legal Studies students must take 18 credits as follows.

Core Courses

Students should take all the 4 courses (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEG 201</td>
<td>Introduction to Legal Studies</td>
</tr>
<tr>
<td>LEG 202</td>
<td>Law and Society-World Legal Traditions</td>
</tr>
<tr>
<td>LEG 203</td>
<td>Laws in the Middle East</td>
</tr>
<tr>
<td>POL 201</td>
<td>Introduction Political Science</td>
</tr>
</tbody>
</table>

Electives

Choose 2 of the following courses (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 202</td>
<td>Business Law</td>
</tr>
<tr>
<td>POL 221</td>
<td>Comparative governments of the major Powers</td>
</tr>
<tr>
<td>POL 231</td>
<td>Introduction to Human Rights</td>
</tr>
<tr>
<td>POL 321</td>
<td>American Government and Politics</td>
</tr>
<tr>
<td>POL 332</td>
<td>Public International law</td>
</tr>
<tr>
<td>POL 431</td>
<td>International Regional Organizations and Agencies</td>
</tr>
</tbody>
</table>

MINOR IN POLITICAL SCIENCE/INTERNATIONAL AFFAIRS

MISSION

The Minor in Political Science-International Affairs supports the Lebanese American University’s core mission, vision and values by a commitment to education with a strong liberal arts foundation and a continuous improvement in the overall quality of teaching, research, writing and educational service. The intent of the program is thus to advance an academic understanding of contemporary political science-international affairs and address its complexities.
EDUCATIONAL OBJECTIVES

1. Prepare the students for the job market by adding to their majors through a minor in political science/international affairs.

2. Enhance the political and global knowledge of students who are not majoring in political science-international affairs.

3. Develop students’ research and writing skills through active learning and the promotion of critical thinking.

4. Provide a strong political science-international affairs background for students majoring in many disciplines, such as Education, Psychology, Social Work, English Literature, Communication Arts, etc.

5. Challenge students and faculty to improve the learning process.

6. Prepare students who are not majoring in political science/international affairs to join the MA program in International Affairs at LAU after completing the BA.

7. Expand outreach and engagement by encouraging faculty and students to contribute to the community at large.

LEARNING OUTCOMES

1. Understand the nature of government processes, the function of political systems, the structures and roles of institutions and constitutions, theories of international relations, the role and functions of international organizations, the nature of international law, foreign policy, and international relations.

2. Possess the necessary theoretical and research skills essential for high level intellectual pursuit.

3. Be able to think creatively and independently about major issues in international affairs and transfer these skills to identify problems, conceptualize ideas and communicate solutions in various situations that emerge in the working place.

4. Acquire the ability to find work in fields relevant to political science and international affairs.

5. Obtain a sufficient grasp of the complexities of modern societies.

REQUIREMENTS

For a minor in Political Science and International Affairs students must choose 18 credits of the following courses:

<table>
<thead>
<tr>
<th>Minor Core Requirements (9 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 201 Introduction to Political Science</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minor Elective Requirements (9 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL 221 Comparative Politics of the Major Powers</td>
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<td>POL 321 Politics of the Developing Areas</td>
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<td>POL 322 Foreign Policy of the Major Powers</td>
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<td>POL 323 Middle East Governments and Politics</td>
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<td>POL 331 International Organization</td>
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<td>POL 332 Public International Law</td>
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MINOR IN PSYCHOLOGY

PROGRAM MISSION STATEMENT

The mission of a minor in psychology is to complement students’ major field of study with knowledge and experience that will enhance their understanding of human behavior and interdisciplinary inquiry.

PROGRAM OBJECTIVES

The general objectives of the minor are to:

1. Provide students with a general view of the discipline of psychology and its subspecialties.

2. Equip students from other majors with knowledge in major areas in psychological studies.

LEARNING OUTCOMES

Upon successful completion of the program:

1. Students will become familiar with the main approaches/subfields in psychology including, social, physical, organizational, learning, clinical, developmental, neurological and cultural.

2. Students will become aware of some of the following knowledge areas:
   - Developmental; as related to each major period of life, infancy, childhood, adolescence, adulthood, and old age.
   - Brain and learning; as related to biological bases of behavior and learning and as linked to three major theories of behaviorism, cognition, and social cognitive learning.
   - Social and Organizational; as applied to behavior of individuals in groups and in organizations.
   - Applied Psychology; as associated with symptomatology, possible etiology, and proposed treatment for the major
MISSION

Basing itself on the University’s 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 in-depth understanding of the main theories, application of research methodologies and analysis of current debates and topics 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 focusing on developmental, civil society, and post-conflict peace building activities.
3. Provide students with business-related majors with a comprehensive understanding of the workings of the international system and the policy making process.

REQUIREMENTS

For a Minor in Sociology, students have to choose three courses, in addition to SOC201, SOC401 and SOC488 from the following list (for a total of 18 credits):

- SOC215 Introduction to Gender Studies
- SOC212/COM210 Communication Media & Society
- SOC303 Urban Sociology
- SOC304 Sociology of Religion
- SOC321 Sociology of the Arab World

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.

M.A. IN INTERNATIONAL AFFAIRS

CURRICULUM (18 CREDITS)

Core Courses (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>PSY 201</td>
<td>Introduction to Psychology</td>
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<tr>
<td>PSY 202</td>
<td>Child Psychology</td>
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<tr>
<td>PSY 234</td>
<td>Development across the Life Span</td>
</tr>
</tbody>
</table>

Electives (12 credits)

From listed courses under the areas of Developmental, Brain and Learning, Social / organizational, and Applied.

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...)

1. Become aware of how to transfer and apply knowledge and research findings to the Lebanese context.

2. Develop the ability to communicate effectively.
3. Lay the groundwork for the pursuit of graduate studies in Sociology.
Department of Social Sciences

STUDENT LEARNING OUTCOMES
Graduates in the M.A. in International Affairs Program will:

1. Acquire the analytical, methodological, and writing skills necessary to produce quality research papers, and one capstone Research Project (i.e. Thesis.).
2. Employ advanced research and critical thinking skills.
3. Acquire the necessary communicative skills to convey, persuasively, and lucidly, complex ideas and perspectives to different cohorts, namely diplomats, policy makers, public officials, and the media.
4. Apply the skills of diplomacy, negotiation and bargaining, as well as the techniques of conflict resolution.

Students need 30 credits for the Major (9 for the Core and 21 for Other Requirements).

Core Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>INA811</td>
<td>Theories of International Affairs</td>
<td>3</td>
</tr>
<tr>
<td>INA899</td>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

Other Requirements

Choose 7 courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INA812</td>
<td>Foreign Policy Analysis</td>
<td>3</td>
</tr>
<tr>
<td>INA813</td>
<td>Topics in International Relations</td>
<td>3</td>
</tr>
<tr>
<td>INA814</td>
<td>Topics in Middle East International Relations</td>
<td>3</td>
</tr>
<tr>
<td>INA815</td>
<td>Topics in International Organizations</td>
<td>3</td>
</tr>
<tr>
<td>INA821</td>
<td>Diplomacy and Bargaining</td>
<td>3</td>
</tr>
<tr>
<td>INA831</td>
<td>International Political Economy</td>
<td>3</td>
</tr>
<tr>
<td>INA841</td>
<td>Private International Law</td>
<td>3</td>
</tr>
<tr>
<td>INA842</td>
<td>Topics in International Law</td>
<td>3</td>
</tr>
<tr>
<td>INA851</td>
<td>International Conflict and Conflict Resolution</td>
<td>3</td>
</tr>
</tbody>
</table>

COURSE DESCRIPTIONS

LEGAL STUDIES

LEG 201 Introduction to Legal Studies (3-0)
This course explores the ways “law shapes society and society shapes law.” This course introduces students to Legal Studies in the legal fields and topics. Legal lexis will be emphasized. Over the course of the semester, the students will be exposed to the definitions and concepts of law, the different forms of law and how they are shaped. It will explore how people understand law and the legal system, how injuries and disputes are understood and mediated. It will as well define the goals and purposes of trials. This course will also provide an overview of the role of paralegals in a work environment, while concentrating on the various regulations and ethical guidelines governing the work of paralegals.

LEG 202 Law and Society-World Legal Traditions (3-0)
This course is designed to introduce the relationship between legal systems and society. It will deal with the interaction between society and the different legal systems. The course will primarily compare different legal systems in the world, Civil law and the Common law. It will explore the different meanings of law, its functions, roles, and elements among different legal traditions and cultures. The course will venture into the rich theoretical jurisprudential debates. The first part of the course is a study of the structure of legal systems and the roles of the various actors. The second part of the course examines the role of the courts and the judicial system.

Prerequisite: LEG 201: Introduction to Legal Studies

LEG 203 Laws in the Middle East (3-0)
This course provides an introduction to legal systems in the Middle East, defining the contours of a field of study that deserves to be called ‘Middle Eastern legal systems’. It introduces Middle Eastern law as a reflection of legal styles, many of which are shared by Islamic law and the laws of Christian and Jewish Near Eastern communities. This course will study as well the colonial legacy that shaped to a large extent the contemporary legal systems in the Middle East. It offers a detailed survey of the foundations of Middle Eastern law, using court archives and an array of legal sources from the earliest records of Hammurabi to the massive compendia of law in the Islamic classical age, through to the latest decisions of Middle Eastern high courts. It focuses on the way legislators and courts conceive of law and apply it in the Middle East, especially in Lebanon.

Prerequisite: LEG 201: Introduction to Legal Studies

PEACE AND JUSTICE EDUCATION

PJE201 Cross-cultural communication for Peace (3-0, 3 cr.)
This course examines the basic concepts, theories and issues of intercultural communication and cross-cultural human relations. The course explores how these relate to interpersonal and group conflict and conflict transformation.
POLITICAL SCIENCE

POL 101 Introduction to Politics [3 credits]
A general introduction to the principal concepts of political science. In presenting the major political ideas, political behaviors, and governing institutions, the course investigates how political power is developed, preserved, and challenged.

POL 201 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.

POL 202 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 Lebanese administrative and constitutional law.

Prerequisite: POL 201 Introduction to Political Science.

POL 211 History of Political Thought I [3-0, 3 cr.]
This course surveys the history of political ideas from the Greeks to the 18th Century. It discusses political ideas related to the general philosophy of politics, state, and society. The readings are from original sources.

Prerequisite: POL 201 Introduction to Political Science.

POL 212 History of Political Thought II [3-0, 3 cr.]
This course is a follow-up to POL 211 History of Political Thought I, covering political ideas from the Renaissance to the present. The readings are from original sources.

Prerequisite: POL 201 Introduction to Political Science.

POL 221 Comparative Governments of the Major Powers [3-0, 3 cr.]
This course deals with comparative history and the development of governments, and the new approaches to studying them. It also covers the “whys” and “wherefores” of various political systems, as well as comparisons between them.

Prerequisite: POL 201 Introduction to Political Science.

POL 231 Introduction to Human Rights [3-0, 3 cr.]
This course deals with 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? Are some rights more fundamental than others, and what compelling interests, if any, justify their violation?

POL 311 Methodology and Political Analysis [3-0, 3 cr.]
This course covers the scope and methods of political science and alternative approaches to political science research. It also covers the techniques of using data and the mechanics of research.

Prerequisite: POL 201 Introduction to Political Science.

POL 312 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: POL 201 Introduction to Political Science.

POL 313 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: POL 201 Introduction to Political Science.

POL 321 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 as European integration and the United Nation’s revival. This course further discusses the domestic and international influences on great power decision-making, notably security and economic matters.

Prerequisite: POL201 Introduction to Political Science.

POL323 Middle East Governments and Politics [3-0, 3 cr.]
This course deals with the major themes and challenges shaping Middle East politics. Topics covered include the process of post-colonial state formation; the rise of Arab nationalism and other forms of proto-nationalisms; variations in regime consolidation and state-society relations; the institutional structures of authoritarianism; the challenges of economic restructuring and political liberalization; and the Islamist challenge.

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 examines the nature of international law sources, the differences between international law and municipal law and the international systems’ legal organization, states (their territory and jurisdiction) as subjects of international law, as well as international treaties and agreements, diplomatic and consular agents, laws of war, neutrality, belligerent occupation, and war crimes. Through case studies, this course examines the principle laws of nations.

Prerequisite: POL201 Introduction to Political Science.

POL332 Public International Law [3-0, 3 cr.]
This course examines the nature of international law sources, the differences between international law and municipal law and the international systems’ legal organization, states (their territory and jurisdiction) as subjects of international law, as well as international treaties and agreements, diplomatic and consular agents, laws of war, neutrality, belligerent occupation, and war crimes. Through case studies, this course examines the principle laws of nations.

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, the legal foundations of international regional organizations, and their relations to the United Nations. The course also examines the types of international regional organizations, their varied functions, and the political and economic significance of these organizations. Occasional guest speakers from the United Nations will be invited.

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. This course will include interactive activities with diplomats and consulates through field trips to the Lebanese Foreign Ministry and to selected embassies in Lebanon.

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.

PSYCHOLOGY

PSY 101 Introduction to Psychology [3 credits]
Provides students with a general overview of the subject matter of Psychology, which is defined as the scientific study of behavior and mental processes. The course aims to give students a better understanding of why people act, think, and feel the way they do. Among others, it covers topics on learning, personality, emotions, psychological disorders, social interactions, and the biological bases of behavior. Knowledge will be drawn from the major approaches of psychology, namely psychoanalytic, behavioral, humanistic, cognitive, and biological.

PSY 201 Introduction to Psychology:
This course explores the scientific basis of psychological functioning. 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.

PSY 202 Child Psychology:
The course explores theories and research findings, on prenatal development, physical growth, emotional, social, and intellectual development, and cultural influences in children prior to adolescence.

PSY 203 Psychology of Youth:
This course focuses on the physical, cognitive and emotional changes experienced by young people and how these changes are affected by family, peers, dating, and the media. It also considers the challenges faced by adolescence, with a focus on drugs, and deviance.
Prerequisite: PSY201 Introduction to Psychology, or PSY202 Child Psychology.

PSY 204 Social Psychology:
Social Psychology focuses on how individual motives, cognitions, attitudes are affected by groups, organizations and institutes. These influences will be explored in domains such as interpersonal attraction, prejudice, conformity, attitudes, aggression and motivation.
Prerequisite: PSY 201

PSY 234 Development across the Life Span:
Human Development Through the Lifespan is devoted to the study and understanding of constancy and change of human beings in the physical, cognitive, social and emotional domains interpreted through a variety of theoretical frameworks, contexts, and interdisciplinary research. The course will cover the periods of childhood, adolescence, adulthood, late adulthood and old age.
Prerequisite PSY 201 for psychology majors.

PSY 245 Research Methods I:
Students will develop skills which prepare them to design, conduct and analyze research including a thorough knowledge of the following: literature searches, evaluation of research literature, critiquing and deconstructing an empirical article, developing research questions and hypotheses, research ethics, scientific and APA writing style. There will be special emphasis on the need for psychological research in the Lebanese context.
Prerequisite PSY 201.

PSY 256 Sensation and Perception:
This course explores how multisensory mechanisms transform external stimuli into information that our brains can understand and reliably interpret. All senses will be examined with an emphasis on vision. Topics include perception of color, motion, form, depth, perceptual illusions, perceptual disorders such as inability to see motion or/ and identify objects or faces.
Prerequisite: PSY 201
**PSY 267 Cultural Psychology:**
The course will give students an introduction to the scientific, theoretical and applied basis of cultural psychology. Students will develop an understanding of universal and culturally shaped psychological processes and how they shape morality, religious thought, emotions, psychological health, conformity and other hot topics in the field.
Prerequisite PSY 201

**PSY 295 Psychology of Learning:**
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

**PSY 311 Exceptional Child:**
This course provides an introduction to the concept of exceptionality and an overview of the various forms of atypical growth and development. Course work includes psychology and identification of exceptional children. Focus is on children classified as having learning disabilities and their implications for classroom life in both special classes and inclusion setting

**PSY 320 Theories of Personality:**
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

**PSY 322 Mind and behavior:**
This course is an interdisciplinary introduction to the problems, theories and research on the human mind and other cognitive systems. The following topics will be covered: perception, memory, attention reasoning, problem solving, language comprehension and production and cultural cognition.
Prerequisite: PSY 201

**PSY335 Industrial Organizational Psychology:**
Industrial psychology is the study of techniques and theories related to understanding, predicting, and managing human behavior within organizations in order to increase organizational effectiveness and individual well-being. Topics include selection, training, appraisal, job attitudes, work motivation, leadership, job design, organizational culture, and work environment.
Prerequisite PSY 201

**PSY345 Research Methods II:**
This course covers advanced research designs as well as advanced statistical analyses in psychological research. In the first half of the semester, students will learn all aspects of inferential statistics and in the second half, students will be introduced to advanced research designs, such as experiments and multivariate designs. The course combines both lectures and lab-based sessions.

**PSY 425 Abnormal Psychology:**
In this course students examine the field of abnormal psychology, surveying the major psychological disorders and their classification. Emphasis is on recognizing symptoms and exposure to some treatment approaches.
Prerequisite PSY 320: Theories of Personality.

**PSY466 Counseling Psychology:**
This course is designed to provide an introduction to the field of counseling psychology. Topics related to the contemporary counseling psychology approaches will be discussed. The core of the course will focus on theory and application. Case studies will supplement theoretical material.
Prerequisite: PSY 425 Abnormal Psychology

**PSY 498 Topics in Psychology*:**
This course deals with an area of psychology, or a topic that is not usually dealt in other psychology courses. Topics will vary depending on contemporary issues in the field of psychology and students’ needs as agreed upon by the faculty of the program.
Prerequisite PSY 201 and approval of instructor

**PSY499 Psychology Senior Study:**
This course is an independent scholarly work on a topic chosen by the student. 3 credits
Prerequisite senior standing and PSY 204 Social Psychology

**SOCIOLOGY/SOCIAL WORK**
**SOC101 Sociology and Society [3-0, 3 cr.]**
This course introduces students to basic concepts in sociology. It is designed to make students understand what makes sociology a different discipline from other social sciences. It covers basic topics including, but not limited to: groups, communities and society, evolution of societies, social structure and social change, communication in society, social stratification, youth and subculture, family and kin relations, social inequality and social mobility, social integration and solidarity, culture and social values. Examples are drawn from Lebanon and elsewhere to clarify the discussion.

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 and explaining social phenomena. 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 various causes, and types of social problems in modern society, notably in the Middle East. Selected social problems are studied, including various theories related to such problems, and the appropriate solutions are designed and critically analyzed.

SOC313 Family and Child Welfare [3-0, 3 cr.]
This course provides knowledge of, and concern for, child welfare services through analyzing parents’ and children’s needs, and acquaint students with the existing services for parents and children in Lebanon.

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 I [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.
SOC403 Social Work Intervention II [3-0, 3 cr.]
This course examines various intervention 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 provided with 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 on providing students with a field opportunity to 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.

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 historical and sociological perspectives, and patterns are identified as a basis for evaluation of women’s position in society.
Prerequisite: ENG101 English I.

INTERNATIONAL AFFAIRS (GRADUATE)
INA811 Theories of International Relations [3-0, 3 cr.]
This course examines contending theoretical approaches to the study of international relations. Each theory is set in its own ideational and historical context. The explanatory value of the different theories is then compared with reference to their different levels of analysis. The course closes by evaluating contemporary themes and methods in international relations theorizing.

INA812 Foreign Policy Analysis [3-0, 3 cr.]
This course examines the various factors influencing foreign policy-making. These include systemic, domestic, idiosyncratic, bureaucratic, and constructivist variables. The course combines theoretical analysis as well as case studies.

INA813 Topics in International Relations [3-0, 3 cr.]
This course involves an analysis of salient historical or contemporary themes in international relations. The choice of a
particular theme is left to the discretion of the instructor.

**INA814 Topics in Middle East International Relations [3-0, 3 cr.]**
This course examines alternative theoretical explanations of Middle East international relations and state behavior, reviews the transformations of regional geopolitics, and explains the state behavior of a select number of Middle East states.

**INA815 Topics in International Organizations [3-0, 3 cr.]**
This course consists of case studies on how international actors behave under the institutional constraints of the United Nations. The cases include collective security, disarmament, peaceful settlement, peace-keeping, humanitarian intervention, human security, social and technical cooperation, and international trade and financial management to promote economic development.

**INA821 Diplomacy and Bargaining [3-0, 3 cr.]**
This course focuses on the art and techniques of political and crisis bargaining among states. The course surveys alternative theories of diplomacy, crisis bargaining, and negotiations. It then simulates actual negotiations between states in an attempt to inject theories of diplomacy and bargaining with real world experiences.

**INA831 International Political Economy [3-0, 3 cr.]**
This course examines the making of the international political economy, and analyzes the impact of interactions between economic and political factors on the international system. Themes covered include the different ideologies of IPE, international financial and trade regimes, complex interdependency, dependency and economic development, the challenges of globalization, the role of governmental and international organizations on the IPE, and the crisis of capitalism.

**INA841 Private International Law [3-0, 3 cr.]**
This course includes such topics as “classification” to identify legal cases, the application of foreign law in national courts, resolution of different laws’ contradictions, conflict of nationalities, and themes related to capacity, marriage, contracts, etc.

**INA842 Topics of International Law [3-0, 3 cr.]**
This course focuses on a pertinent contemporary topic in international law. Topics examined may include the individual in international law, international criminal law, extradition, recognition of states, governments, and belligerent communities, special tribunals, or any other topic deemed important by the instructor.

**INA851 International Conflict and Conflict Resolution [3-0, 3 cr.]**
This course examines the various causes and theories of war and international conflict from different levels of analysis. It then surveys critically different theories of conflict resolution and prevention. The course combines both theoretical and case-study analysis.

**INA899 Thesis [6 cr.]**
This course involves writing an original and extensive research project, under the supervision of an advisor, defended before a committee.
The School of Business
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 the diverse, theoretical, methodological and practical skills that are needed to succeed in the world of business and in all kinds of learning environments.

GENERAL LEARNING OUTCOMES
The School of Business aims to equip 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 and 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.

DEAN
Dr. Said El-Fakhani

ASSISTANT DEAN
Dr. Salpie Djoundourian, Associate Professor (Byblos)
Dr. Jim Finlay, Professor (Beirut)

CHAIRS
Dr. Abdallah Dah, Professor (Beirut)
Dr. Ghassan Dibeh, Professor (Byblos)
Dr. Said Ladki, Professor (Beirut)
Dr. John McGill, Assistant Professor (Beirut)
Dr. Elias Raad, Associate Professor (Byblos)
Bachelor Of Science (B.S.)
Degree Programs

This major equips students with the professional skills in accounting, banking and finance, economics, international business, hospitality management, management information systems, management and marketing, enabling graduates to find entry-level jobs in the world of business, finance and government. The program also serves as a rigorous preparation for graduate study in business administration and other fields.

The Bachelor of Science degree may be obtained at the Beirut and Byblos campuses in Accounting, Banking and Finance, Economics, Family and Entrepreneurial Business Management, Hospitality Management, International Business, Management, Management Information Systems, and Marketing.

MAJOR LEARNING OUTCOMES
Graduates in the Bachelor of Science in Business Studies will be able to:

• 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.
• Possess an understanding of their ethical and social responsibilities in the global marketplace.
• 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>Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>ACC201</td>
<td>Principles of Accounting I</td>
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<td>ACC202</td>
<td>Principles of Accounting II</td>
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<td>Business Law</td>
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<td>Microeconomics</td>
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<td>MGT201</td>
<td>Introduction to Management</td>
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<tr>
<td>MKT201</td>
<td>Introduction to Marketing</td>
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ACCOUNTING

A total of 51 credits are needed (30 credits for the core, and 21 credits for the emphasis), other than the General University Requirements, to provide students with the skills and knowledge in accounting within a business management context. This area of emphasis also grounds students in the decision-making process and prepares them for graduate studies, leading to the Master of Business Administration (M.B.A.) Degree, the Master of Science (M.S.) Degree, or careers in entry-level position in accounting.

Required (15 Credits)

<table>
<thead>
<tr>
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<td>ACC401</td>
<td>Advanced Accounting</td>
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<td>ACC411</td>
<td>Auditing</td>
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Any two of the following Business Electives (6 credits)

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<td>Accounting Information Systems</td>
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<td>ACC415</td>
<td>Tax Accounting</td>
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<td>Monetary Theory &amp; Policy</td>
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<td>ECO311</td>
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<td>ECO410</td>
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<td>Financial Institutions &amp; Markets</td>
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<tr>
<td>MGT441</td>
<td>Human Resource Development</td>
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</tr>
<tr>
<td>MIS212</td>
<td>Management Information Systems II</td>
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</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)

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<td>Financial Institutions and Markets</td>
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<td>Banking Operations</td>
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<td>FIN411</td>
<td>Security Analysis and Portfolio</td>
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Any two of the following Business Electives (6 credits)

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<td>Research Methods</td>
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<td>Intermediate Macroeconomics</td>
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<td>Advance Topics in Economics</td>
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<td>ECO410</td>
<td>Mathematical Methods for Economics</td>
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<td>FIN302</td>
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<td>MGT441</td>
<td>Human Resource Development</td>
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<tr>
<td>MIS212</td>
<td>Management Information Systems II</td>
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</table>

ECONOMICS

Students need 51 credits in the major (30 credits for the core and 21 credits for the emphasis) to graduate. This area of 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>
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<tbody>
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<td>Monetary Theory &amp; Policy</td>
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<td>ECO401</td>
<td>International Economics</td>
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Any two of the following Business Electives (6 credits)

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<tbody>
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<td>BUS311</td>
<td>Research Methods</td>
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<td>ECO410</td>
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</tr>
<tr>
<td>MGT441</td>
<td>Human Resource Development</td>
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</tr>
<tr>
<td>MIS212</td>
<td>Management Information Systems II</td>
<td>3</td>
</tr>
</tbody>
</table>

FAMILY & ENTREPRENEURIAL BUSINESS 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 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 start-ups.
INTERNATIONAL BUSINESS

Students need 51 credits in the major (30 credits for the core and 21 credits for the emphasis) to graduate. This area of emphasis 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 (18 Credits)

- ECO401 International Economics 3
- FIN302 Financial Institutions & Markets 3
- IBS311 Managing the Multinational Corporation 3
- IBS321 Global Financial Management 3
- IBS499 Senior Study/Internship 3
- MKT311 International Marketing 3

Any of the following Business Electives (6 credits)

- ACC302 Cost Accounting 3
- BUS301 Intermediate Business Statistics 3
- FEB488 Topics in Family & Entrepreneurial Business 3
- IBS488 Topics in International Business 3
- MGT301 Organizational Behavior 3
- MGT441 Human Resources Development 3
- MKT421 Marketing Research 3

HOSPITALITY MANAGEMENT

A total of 51 credits are needed in the major (30 credits for the core and 24 credits for the emphasis) to graduate. After graduation, students are prepared to work in hotels, restaurants, catering, theme parks, casino management, food processing, and travel and tourism-related industries.

Required (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 & Administration in RHI 3
- HOM499 Senior Study – Internship in RHI 3

Required (15 Credits)

- FEB301 Entrepreneurial & Small Business Management 3
- FEB304 Family Business Management 3
- FEB311 Small Business Start-up Lab 3
- FEB321 Venture Growth Strategies for Entrepreneurs 3
- MGT499 Senior Study – Management 3

Any two of the following Business Electives (6 credits)

- ACC302 Cost Accounting 3
- BUS301 Intermediate Business Statistics 3
- FEB488 Topics in Family & Entrepreneurial Business 3
- IBS488 Topics in International Business 3
- MGT301 Organizational Behavior 3
- MGT441 Human Resources Development 3
- MKT421 Marketing Research 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 helps students develop skills on how to manage people, materials, equipment, information and other resources used in the production of goods and services. It helps the students to understand the decision-making process in firms, and it develops in them an orderly and systematic way of thinking. It also prepares them for graduate work or for supervisory positions in areas such as purchasing, inventory control, operations scheduling, operations cost control, etc.

**Required (15 Credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<td>MGT301</td>
<td>Organizational Behavior</td>
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<tr>
<td>MGT420</td>
<td>Strategic Planning &amp; Policy Formulation</td>
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</tr>
<tr>
<td>MGT441</td>
<td>Human Resources Development</td>
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<tr>
<td>MGT499</td>
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**Any two of the following Business Electives (6 credits)**

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<td>BUS301</td>
<td>Intermediate Business Statistics</td>
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</tr>
<tr>
<td>BUS311</td>
<td>Research Methods in Business</td>
<td>3</td>
</tr>
<tr>
<td>FEB301</td>
<td>Entrepreneurship &amp; Small Business Management</td>
<td>3</td>
</tr>
<tr>
<td>FEB488</td>
<td>Topics in Family &amp; Entrepreneurial Business</td>
<td>3</td>
</tr>
<tr>
<td>FIN302</td>
<td>Financial Institutions &amp; Markets</td>
<td>3</td>
</tr>
<tr>
<td>HOM204</td>
<td>Restaurant Management</td>
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<td>HOM304</td>
<td>Hotel Operations</td>
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<tr>
<td>IBS311</td>
<td>Managing the Multinational Corporation</td>
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<tr>
<td>IBS488</td>
<td>Topics in International Business</td>
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<td>MGT401</td>
<td>Project Management</td>
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<td>MGT450</td>
<td>Special Topics in Management</td>
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<tr>
<td>MIS212</td>
<td>Management Information Systems II</td>
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</table>

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 instils 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)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<td>Promotion Management &amp; Market Communication</td>
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<td>MKT304</td>
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**Any two of the following Business Electives (6 credits)**

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<td>MKT488</td>
<td>Topics in Marketing</td>
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</table>
The Bachelor of Science in Economics aims to give students a solid foundation in theoretical and applied economics. Students are prepared to work immediately after graduation in business, 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 allows students to deepen their knowledge of mathematics, in preparation for graduate work in economics or any other quantitatively oriented field such as mathematical finance.

The Political Science track imparts deeper knowledge of political science and international affairs, preparing students for careers in government and international organizations, or for graduate work in international political economy, law, public policy, and international affairs.

The Finance track allows students to immediately take career positions in business, and to pursue graduate work in finance, international finance, and banking.

The Management 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 M.B.A.

MAJOR LEARNING OUTCOMES

Graduates in the Bachelor of Science in Economics will be able to:

- Apply theoretical and quantitative reasoning to address economic and social issues.
- Solve economic problems and assess the merits of economic policies, using the appropriate methodology, and communicate their decisions effectively.
- Possess an understanding of their ethical and social responsibilities in a multicultural marketplace.
- Have an understanding of the impact of economic policies on the global business operations.

PLAN OF STUDY

**Economics – All tracks (37–40 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
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*Not a requirement for Track III (Mathematics)

**Track I: Finance (18 credits)**

<table>
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<tbody>
<tr>
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**Track II: Management (18 credits)**

<table>
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<tbody>
<tr>
<td>ACC201</td>
<td>Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>ACC202</td>
<td>Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>MGT201</td>
<td>Introduction to Management</td>
<td>3</td>
</tr>
<tr>
<td>MGT301</td>
<td>Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MGT420</td>
<td>Strategic Planning and Policy Formulation</td>
<td>3</td>
</tr>
<tr>
<td>MGT441</td>
<td>Human Resource Development</td>
<td>3</td>
</tr>
<tr>
<td>MIS211</td>
<td>Management Information Systems I</td>
<td>3</td>
</tr>
<tr>
<td>MIS 212</td>
<td>Management Information Systems II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Track III: Mathematics (15 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MTH201</td>
<td>Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MTH301</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MTH304</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
</tbody>
</table>

And any two of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH206</td>
<td>Calculus IV</td>
<td>3</td>
</tr>
<tr>
<td>MTH207</td>
<td>Discrete Structures</td>
<td>3</td>
</tr>
<tr>
<td>MTH303</td>
<td>Numerical Methods</td>
<td>3</td>
</tr>
<tr>
<td>MTH306</td>
<td>Non-Linear Dynamics &amp; Chaos</td>
<td>3</td>
</tr>
<tr>
<td>MTH309</td>
<td>Graph Theory</td>
<td></td>
</tr>
<tr>
<td>MTH498</td>
<td>Topics in Mathematics</td>
<td></td>
</tr>
</tbody>
</table>

**Track IV: Political Science/International Affairs (15 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL201</td>
<td>Introduction to Political Science</td>
<td>3</td>
</tr>
</tbody>
</table>
The School of Business

The Bachelor of Science in Hospitality and Tourism Management prepares students for positions in sales, personnel administration, public relations, auditing, front office management, housekeeping, food and beverage management, meetings and convention planning, and general management positions. Graduates may serve as managers or directors of hotels and restaurants in the catering or food processing industries, as well as 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:

- 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 orally and in writing.
- Possess an understanding of their ethical and social responsibilities in the global marketplace.
- Have an understanding of the global impact of economic conditions and cultural dimensions on travel, tourism and hospitality management.

Plus any four of the following upper-level courses in Political Science / International Affairs.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>POL311</td>
<td>Methodology and Political Analysis</td>
<td>3</td>
</tr>
<tr>
<td>POL312</td>
<td>Politics of the Developing Areas</td>
<td>3</td>
</tr>
<tr>
<td>POL313</td>
<td>Concepts of International Relations</td>
<td>3</td>
</tr>
<tr>
<td>POL321</td>
<td>American Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>POL322</td>
<td>Foreign Policy of the Major Powers</td>
<td>3</td>
</tr>
<tr>
<td>POL323</td>
<td>Middle East Governments and Politics</td>
<td>3</td>
</tr>
<tr>
<td>POL331</td>
<td>International Organization</td>
<td>3</td>
</tr>
<tr>
<td>POL332</td>
<td>Public International Law</td>
<td>3</td>
</tr>
<tr>
<td>POL421</td>
<td>The Middle East in International Affairs</td>
<td>3</td>
</tr>
<tr>
<td>POL431</td>
<td>International Regional Organizations and Agencies</td>
<td>3</td>
</tr>
<tr>
<td>POL432</td>
<td>Diplomatic and Consular Services</td>
<td>3</td>
</tr>
<tr>
<td>POL433</td>
<td>The UN System and Problems of Development</td>
<td>3</td>
</tr>
</tbody>
</table>

The Bachelor of Science (B.S.) in Hospitality & Tourism Management
The School of Business

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 (M.B.A.), 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. In order to make the program accessible to those already active in management, a provision has been made for part-time students with classes 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:

• 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.
• 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:

- Take seven courses from the following list.
- Take six courses from the following list and BUS898 Project in Business.
- Take five courses from the following list and BUS899 Thesis in Business.

Students can choose to pursue one of the following remaining options for graduation:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BUS811</td>
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<td>BUS831</td>
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</tr>
<tr>
<td>BUS841</td>
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<td>BUS851</td>
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<td>BUS861</td>
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<td>BUS821</td>
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<td>BUS822</td>
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<tr>
<td>BUS832</td>
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<td>BUS833</td>
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<td>BUS863</td>
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<td>BUS876</td>
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</tr>
<tr>
<td>BUS898</td>
<td></td>
</tr>
<tr>
<td>BUS899</td>
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</table>

*This course may be taken more than once for credit, however, with different topics.

**HOSPITALITY MANAGEMENT REQUIREMENTS (24 CREDITS)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HOM201</td>
<td>Introduction to RHI</td>
<td>3</td>
</tr>
<tr>
<td>HOM204</td>
<td>Restaurant Management</td>
<td>3</td>
</tr>
<tr>
<td>HOM302</td>
<td>Hospitality Purchasing</td>
<td>3</td>
</tr>
<tr>
<td>HOM304</td>
<td>Hotel Operations</td>
<td>3</td>
</tr>
<tr>
<td>HOM306</td>
<td>Quantity Food Production/Catering</td>
<td>3</td>
</tr>
<tr>
<td>HOM308</td>
<td>Cost Control in RHI</td>
<td>3</td>
</tr>
<tr>
<td>HOM311</td>
<td>Organization and Administration in RHI</td>
<td>3</td>
</tr>
<tr>
<td>HOM499</td>
<td>Senior Study – Internship in RHI</td>
<td>3</td>
</tr>
</tbody>
</table>

**TOURISM MANAGEMENT REQUIREMENTS (9 CREDITS)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOM211</td>
<td>Introduction to Travel and Tourism</td>
<td>3</td>
</tr>
<tr>
<td>HOM321</td>
<td>Tourism Economic and Cultural Impact</td>
<td>3</td>
</tr>
<tr>
<td>HOM324</td>
<td>Convention and Service Management</td>
<td>3</td>
</tr>
<tr>
<td>HOM488</td>
<td>Seminar in Hospitality and Tourism</td>
<td>3</td>
</tr>
</tbody>
</table>
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 (E.M.B.A.) 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 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 enrol 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 email or in person, within two or three weeks.
- Up to 12 courses of one credit each offered by the institutes in the School of Business can be granted credit toward the E.M.B.A. program, subject to meeting the standards set by the program’s administration.

**LEARNING OUTCOMES**

The E.M.B.A. program will enable the graduates to:

- Apply effectively accounting, financial, economic, management and marketing principles and theories in business organizations, to solve business problems.
- Work effectively in groups and teams, seeking to achieve common goals and objectives, and become effective leaders and managers in their institutions.
- Show effective listening skills, in addition to oral and written communication skills.
- Apply new technology to obtain and retrieve data to analyze information and to present results in an efficient way.
- Understand and recognize the integrity and ethical responsibility of business executives in any business and social environment.

**COURSE REQUIREMENTS**

All candidates of the Executive Master of Business Administration degree must take 36 of the following courses to graduate. Each course is worth one credit.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ACC710</td>
<td>Financial Accounting and Reporting</td>
<td>1</td>
</tr>
<tr>
<td>ACC712</td>
<td>Accounting for Business Investing Activities</td>
<td>1</td>
</tr>
<tr>
<td>ACC714</td>
<td>Accounting for Business Financing Activities</td>
<td>1</td>
</tr>
<tr>
<td>ACC716</td>
<td>Accounting for Managerial Decision Making</td>
<td>1</td>
</tr>
<tr>
<td>ACC718</td>
<td>Cost Accounting</td>
<td>1</td>
</tr>
<tr>
<td>ACC719</td>
<td>Budget and Control</td>
<td>1</td>
</tr>
<tr>
<td>ACC720</td>
<td>Auditing for Auditees</td>
<td>1</td>
</tr>
<tr>
<td>ACC780</td>
<td>Topics in Accounting</td>
<td>1</td>
</tr>
<tr>
<td>FIN710</td>
<td>Mathematics of Finance</td>
<td>1</td>
</tr>
<tr>
<td>FIN711</td>
<td>Interest Rate Risk</td>
<td>1</td>
</tr>
<tr>
<td>FIN713</td>
<td>Liquidity and Reserve Management Strategies</td>
<td>1</td>
</tr>
<tr>
<td>FIN716</td>
<td>Bank Equity Capital</td>
<td>1</td>
</tr>
<tr>
<td>FIN717</td>
<td>Bank Credit Analysis</td>
<td>1</td>
</tr>
<tr>
<td>FIN720</td>
<td>Foreign Exchange Markets and Rates</td>
<td>1</td>
</tr>
<tr>
<td>FIN722</td>
<td>International Money Markets</td>
<td>1</td>
</tr>
<tr>
<td>FIN725</td>
<td>The Euro and Business</td>
<td>1</td>
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<tr>
<td>FIN726</td>
<td>Financial Markets in the Middle East</td>
<td>1</td>
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<tr>
<td>FIN730</td>
<td>Capital Budgeting</td>
<td>1</td>
</tr>
<tr>
<td>FIN732</td>
<td>Mergers &amp; Acquisitions</td>
<td>1</td>
</tr>
<tr>
<td>FIN733</td>
<td>Long-Term Financial Policies</td>
<td>1</td>
</tr>
<tr>
<td>FIN735</td>
<td>Working Capital Management</td>
<td>1</td>
</tr>
<tr>
<td>FIN740</td>
<td>Financial Statements Analysis and Forecasting</td>
<td>1</td>
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</tbody>
</table>
### The School of Business

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>FIN742</td>
<td>Portfolio Theory</td>
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<tr>
<td>FIN743</td>
<td>Bond Analysis</td>
<td>1</td>
</tr>
<tr>
<td>FIN745</td>
<td>Financial Derivatives I</td>
<td>1</td>
</tr>
<tr>
<td>FIN746</td>
<td>Financial Derivatives II</td>
<td>1</td>
</tr>
<tr>
<td>FIN749</td>
<td>Investment Banking</td>
<td>1</td>
</tr>
<tr>
<td>FIN780</td>
<td>Topics in Banking and Finance</td>
<td>1</td>
</tr>
<tr>
<td>ECO711</td>
<td>Budgeting and Fiscal Policy</td>
<td>1</td>
</tr>
<tr>
<td>ECO712</td>
<td>Monetary Policy</td>
<td>1</td>
</tr>
<tr>
<td>ECO715</td>
<td>Managerial Economics</td>
<td>1</td>
</tr>
<tr>
<td>ECO720</td>
<td>Taxation of Personal and Corporate Income</td>
<td>1</td>
</tr>
<tr>
<td>ECO722</td>
<td>Regulation of Business</td>
<td>1</td>
</tr>
<tr>
<td>ECO725</td>
<td>Forecasting Business and Economic Indicators</td>
<td>1</td>
</tr>
<tr>
<td>ECO730</td>
<td>Data Analysis</td>
<td>1</td>
</tr>
<tr>
<td>ECO780</td>
<td>Topics in Economics and Statistics</td>
<td>1</td>
</tr>
<tr>
<td>MGT710</td>
<td>Management of Information Technology</td>
<td>1</td>
</tr>
<tr>
<td>MGT712</td>
<td>Advanced Organizational Behavior</td>
<td>1</td>
</tr>
<tr>
<td>MGT714</td>
<td>Competitive Advantage of Operations Management</td>
<td>1</td>
</tr>
<tr>
<td>MGT717</td>
<td>The Executive Manager &amp; Strategy Implementation</td>
<td>1</td>
</tr>
<tr>
<td>MGT719</td>
<td>Global Competitive Strategy Management</td>
<td>1</td>
</tr>
<tr>
<td>MGT722</td>
<td>Organizational Constituents as Entrepreneurs</td>
<td>1</td>
</tr>
<tr>
<td>MGT725</td>
<td>Multinational Business Management</td>
<td>1</td>
</tr>
<tr>
<td>MGT728</td>
<td>Managing Conflicts and Negotiations</td>
<td>1</td>
</tr>
<tr>
<td>MGT730</td>
<td>Managing Planned Change</td>
<td>1</td>
</tr>
<tr>
<td>MGT732</td>
<td>Corporate Strategy</td>
<td>1</td>
</tr>
<tr>
<td>MGT733</td>
<td>The Social Responsibility of Business</td>
<td>1</td>
</tr>
<tr>
<td>MGT735</td>
<td>Managerial Performance Simulation</td>
<td>1</td>
</tr>
<tr>
<td>MGT736</td>
<td>Enhancing Managerial Communication Skills</td>
<td>1</td>
</tr>
<tr>
<td>MGT737</td>
<td>Modern Human Resource Management</td>
<td>1</td>
</tr>
<tr>
<td>MGT738</td>
<td>Personnel Economics</td>
<td>1</td>
</tr>
<tr>
<td>MGT739</td>
<td>Value Creation in Human Resource Management</td>
<td>1</td>
</tr>
<tr>
<td>MGT740</td>
<td>Strategic Management in the Hospitality Industry</td>
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</tr>
<tr>
<td>MGT742</td>
<td>Tourism Planning and Development</td>
<td>1</td>
</tr>
<tr>
<td>MGT745</td>
<td>Contemporary Trends in the Hospitality Industry</td>
<td>1</td>
</tr>
<tr>
<td>MGT750</td>
<td>Leaders and Leadership</td>
<td>1</td>
</tr>
<tr>
<td>MGT752</td>
<td>Teamwork and Self-Managed Work Teams</td>
<td>1</td>
</tr>
<tr>
<td>MGT780</td>
<td>Topics in Management</td>
<td>1</td>
</tr>
<tr>
<td>MKT710</td>
<td>Ethics in Marketing</td>
<td>1</td>
</tr>
<tr>
<td>MKT712</td>
<td>Emerging Markets &amp; Adaptive Marketing Strategies</td>
<td>1</td>
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<tr>
<td>MKT715</td>
<td>Competitive Marketing Management Strategy</td>
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<tr>
<td>MKT718</td>
<td>Sales Management</td>
<td>1</td>
</tr>
<tr>
<td>MKT721</td>
<td>Globalization and Electronic Commerce</td>
<td>1</td>
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<tr>
<td>MKT723</td>
<td>Marketing Channels and Logistics Strategy</td>
<td>1</td>
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<tr>
<td>MKT726</td>
<td>Advertising and Promotion Using IMC Strategy</td>
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<tr>
<td>MKT780</td>
<td>Topics in Marketing</td>
<td>1</td>
</tr>
</tbody>
</table>

### CENTERS AND INSTITUTES

#### INSTITUTE FOR BANKING & FINANCE (IBAF)

This institute offers seminars for middle managers and top executives of financial institutions, who work in increasingly complex and uncertain environments. IBAF’s courses are designed to provide participants with methods to manage their banks’ portfolios in such contexts.

#### INSTITUTE OF FAMILY & ENTREPRENEURIAL BUSINESSES (IFEB)

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 OF HOSPITALITY & TOURISM MANAGEMENT STUDIES (IHTMS)

This institute is housed in the School of Business. It conducts applied research to solve particular problems and identifies factors affecting hospitality and tourism development. IHTMS also determines what makes tourism possible and 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 institute’s activities include research of current issues, professional development programs, and comprehensive publications’ programs.

### FACILITIES

**BUILDINGS:**

There is a Building for the School of Business in Beirut and a shared building for the School of Business in Byblos. Buildings are equipped with state of the art classrooms (smart classrooms), office facilities, seminar rooms, auditorium, Business computer labs,
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.

Prerequisite: ACC201 Principles of Accounting I.

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.
The School of Business

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: ACC301 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.

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 transactions 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 16 weeks, in 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.
Prerequisites: Senior standing and 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.

ACC521 Graduate Remedial in Accounting [3-0, 3 cr.]
This course includes essential material in ACC201 and ACC202. It is open only as a remedial course for accepted students in the M.B.A. program.

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.
**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 packages.

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)**

**BUS105 Business Mathematics**
This is a freshman course for students admitted to the Business School. The course equips students with the mathematical skills required to better understand the many concepts and tools that are encountered in their studies in business and economics. Solving simultaneous equation systems, identifying the difference between linear and nonlinear functions and equations, learning the basic rules of differentiation and integration, and recognizing the use of exponential and logarithmic functions are some of the topics covered in the course.

**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.
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 and ENG102 English III.

BUS203 Business Law [3-0, 3 cr.]
This course is an introduction to 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, as well as the product, pricing, promotion, and 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.

BUS210 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 BUS210 and STA202 Applied Statistics, or STA302 Statistics.

BUS301 Intermediate Business Statistics [3-0, 3 cr.]
This course addresses more advanced topics in statistics for business students.
Prerequisite: BUS210 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.

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 students to critically analyze the effects information technology has on most businesses and industries. Topics include email 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. 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 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.

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, coupled with an investigation of the significant factors that a firm must consider as it positions itself to enter the international marketplace.

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 modelling 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,
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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.

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 business trends. 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 manoeuvres, to meet strategic objectives. Students go through case analysis of 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.

BUS898 Research Topic in Business [3-0, 3 cr.]
BUS899 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 publication.

ECONOMICS

ECO101 Survey of Economics
This course is a survey of main areas of economics. It introduces students to national income accounting, market mechanisms and structures, the banking and monetary system, public finance, foreign trade, economic systems, growth and development, economic fluctuations, and economic policies. This course is used for freshman equivalency and is not offered at LAU.

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 and ECO202 Macroeconomics.

ECO305 Intermediate Microeconomics [3-0, 3 cr.]
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, comparison of the welfare effects of different policies, and externalities and public goods.

Prerequisites: ECO201 Microeconomics and 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, various schools of macroeconomic thought and the sources of instability in the private economy.

Prerequisites: ECO201 Microeconomics and ECO202 Macroeconomics.

ECO311 Economic Development [3-0, 3 cr.]
This course covers the theories of economic development, planning and policies. The course also discusses the building of institutional mechanisms to achieve development.

Prerequisites: ECO201 Microeconomics and 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, and central banking.

Prerequisites: ECO201 Microeconomics and ECO202 Macroeconomics.

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.

Corequisite: ECO330 Introductory Econometrics.

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 addresses government intervention under conditions of market failure. Topics covered include public debt, government expenditure patterns, and tax structures. These are considered from the perspective of government services provision and as public policy instruments.

Prerequisites: ECO201 Microeconomics and 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.

ECO511 Graduate Remedial in Economics/Finance [3-0, 3 cr.]
This course includes essential material in ECO201, ECO202 and FIN301. It is open as a remedial course for accepted students in the M.B.A. program.

FAMILY & ENTREPRENEURIAL BUSINESS

FEB301 Entrepreneurship and Small Business Management [3-0, 3 cr.]
This course is designed to address the complex workings of small family-owned and run businesses. 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 family-owned and run businesses. It will help students develop action plans for their family businesses. Topical coverage includes concepts of corporate governance versus classical governance, structures of a family business, key elements of a governance structure, family businesses versus 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/marriage, 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 Startup Laboratory [3-0, 3 cr.]
The objective of this course is to encourage students to start new businesses and to address functional ways of startups. 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 webpage, 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 includes a laboratory and students will end up with a feasibility study or a business plan.

Prerequisites: Senior standing, MGT201 Introduction to Management and 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 and 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 developments in entrepreneurship, and setting-up and managing small and medium enterprises. The course could be taken more than once for credit when topics differ.

Prerequisites: Refer to Family & Entrepreneurial Business 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,
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table setup, plate placement, carving, flambe, 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 economic, 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.

HOM233 Management of Service Industries [1-0, 1 cr.]
This course presents specific customer issues, and offers an overview of the service industry, history, current status, and future trends of service organizations. It also emphasizes their unique characteristics and operations.

HOM235 Franchising in the Hospitality Industry [1-0, 1 cr.]
This course introduces students to franchising as a means of business. The course emphasizes on the different aspects of hospitality franchising, including history and development, franchisee–franchisor relationship, and legal aspects of franchising.

HOM237 Management of Tourism Attractions [1-0, 1 cr.]
This course covers the organization, and management, of tourist attractions including; museums, national heritages, theme parks, national parks, zoos, and other attractions.

HOM239 Business Etiquette and Protocol [1-0, 1 cr.]
This course will allow the students to learn the importance of etiquette in business and social settings, and the common courtesies in professional life, personal life, formalities, entertaining and entertainments, international, celebration and ceremonies and other situations.

HOM250 Food Preparation I [2-3, 3 cr.]
This course introduces students to the principles and fundamentals of basic cutting and cooking techniques, including meat, fish, poultry, vegetables, baking and pastry. Learned concepts and techniques will be demonstrated and practiced in a laboratory kitchen.

HOM251 Food Preparation II [2-3, 3cr.]
This course will allow students to gain further knowledge in cooking, with special emphasis on stocks, soups, sauces, cooking methods, pastry, and chocolate decoration. Food purchasing, grading, identification, and labeling codes will be introduced.

Prerequisite: HOM250 Food Preparation I.

HOM254 Baking, Pastry and Chocolate [2-3, 3 cr.]
This course introduces students to baking, pastry and chocolate, with special emphasis on yeast bread, shorteners, sweeteners and leaveners, cakes and batters, pastry dough, creams and mousses, glazes, and frozen desserts.

HOM302 Hospitality Purchasing [3-0, 3 cr.]
This course acquaints students with the classifications/functions of the various food markets. It helps students understand the relationship between food specifications and purchasing methods, while enhancing students’ organizational skills in the administration of a successful purchasing department. The course involves the discussion of such concepts as purchasing methods, negotiations, market evaluations and regulations.

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
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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 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, trade shows, 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 must enrol 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 the 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 they branches, subsidiaries, sales offices, or shipping points.
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Prerequisites: MGT201 Introduction to Management and MKT201 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.

Prerequisite: FIN301 Managerial Finance.

**IBS488 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, and designing and managing global operations. The course could be taken more than once for credit when topics differ.

Prerequisites: Refer to International Business requirements and the specific topic offered.

**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, in addition to 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

**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. It aims to provide students with the tools necessary 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 them with the aim of achieving long-term success for the organization. In addition, the course emphasizes the management skills needed to carry out this practice. Industry case studies will be used to examine success and 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 worlds of production and management, both in private and 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.
MANAGEMENT INFORMATION SYSTEMS

MIS211 Management Information Systems I [3-0, 3 cr.]
This course covers the problems of managing the information system resources, combining case studies and lectures, to facilitate critical thinking on computer acquisition, information systems development, and organizational development of end-user computing.

Prerequisite: CSC201 Computer Applications or higher numbered Computer Science course

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: BUS211 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.

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.

Prerequisite: 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.

Prerequisite: 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, BUS201 Business Statistics and ECO201 Microeconomics, or the consent of the department.

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.

Prerequisite: 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.

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 non-current 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
The School of Business

opinions. Topics include audit opinions, audit standards, and evaluating audit risk.

ACC780 Topics in Accounting [1-0, 1 cr.]
This course addresses selected topics, spanning a wide range of accounting issues.

The seminar may be taken for credit more than once when topics differ.

BANKING & FINANCE

FIN710 Mathematics of Finance [1-0, 1 cr.]
This course explores the basic mathematics used in financial decision-making. Students are exposed to time value of money, and its application to bond and stock valuation. Topics include simple and compounded interest rates, future and present values of annuities, stock pricing model, bond pricing model, calculation of various indexes in financial markets, and approaches of calculating rates of return.

FIN711 Interest Rate Risk [1-0, 1 cr.]
This course highlights the risk of interest rate volatility and exposure. It covers bank interest rate risk measurement, using gap and duration analysis, and develops strategies for balance-sheet and off-balance-sheet risk management techniques.

FIN713 Liquidity and Reserve Management Strategies [1-0, 1 cr.]
This course discusses significant bank liquidity problems. It highlights the strategies for liquidity managers, estimates a bank’s liquidity needs, and considers several factors in choosing among the different sources of reserves.

FIN716 Bank Equity Capital [1-0, 1 cr.]
This course highlights several different types of bank capital, and discusses bank capital requirements, based on risk weights, applied to assets, and off-balance-sheet items, under the Basle Agreement, and formulates a plan to meet capital needs.

FIN717 Bank Credit Analysis [1-0, 1 cr.]
This course discusses credit analysis by addressing the short and long-term loans to business firms, the financial ratio analysis of a customer’s financial statements, and business loan applications. The course also covers the pricing of business and consumer loans.

FIN720 Foreign Exchange Markets and Rates [1-0, 1 cr.]
This course introduces foreign exchange markets and rates, and analyzes the difference between spot and forward contracts, highlighting short-term and long-term exchange rate determination, using fundamental analysis. It also provides empirical evidence on currency risk management.

FIN722 International Money Markets [1-0, 1 cr.]
This course discusses the various techniques of investments and financing in international money markets. It analyzes the benefits of international diversification, by providing evidence of these benefits.

FIN725 The Euro and Business [1-0, 1 cr.]
This course introduces the latest developments in the performance of the euro, comparing the euro to other key currencies in international portfolios. The implications of the new currency for international and domestic business enterprises are discussed.

FIN726 Financial Markets in the Middle East [1-0, 1 cr.]
This course discusses the performance of financial markets operating in the 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.
The School of Business

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, as well as 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.

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 introduces 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.

ECO720 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 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 help them 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 strengths and limitations, and the recognition of adequate organizational structure and values.

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 borderless world, based on the international business environment, and using factors like legal-political issues, socio-cultural factors, and the 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 must 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 execute change-management approaches and techniques.

**MGT732 Corporate Strategy [1-0, 1 cr.]**
This course reconciles between industry analysis and corporate competitive capabilities, 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 well-being 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 that are 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 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 contemporary organizations face, 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, as well as the pitfalls that prevent effectiveness in groups, are discussed.

**MGT780 Topics in Management [1-0, 1 cr.]**
This course addresses selected topics, spanning a wide range of management issues.

The seminar may be taken for credit more than once when topics differ.

### MARKETING

**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 marketing managers.

**MKT723 Marketing Channels and Logistics Strategy [1-0, 1 cr.]**
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, 1 cr.]**
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.
The School of Engineering
The School of Engineering

MISSION
To educate students, to provide them with abilities for success in their lives as engineers and as responsible citizens, and to graduate them with distinctive skills that are sought after in the professional world and by graduate schools.

SCHOOL VISION
To advance a distinctive and innovative environment for engineering education.

SCHOOL CORE VALUES
Integrity: To deal honestly and fairly with the public and one another, and to be transparent in our dealing with the public and one another.

Commitment: To be committed to our students and to our school, and to conscientiously strive for excellence in our work.

Responsibility: To be accountable for our actions toward ourselves, others and the community, and to be accountable for our performance and committed to shared governance.

Respect: To value one’s self and others and to respect the rights and dignity of others.

Courage: To face difficult situations with confidence and determination, and to promote intellectual freedom and stand up for one’s convictions.

DEAN
George E. Nasr, Ph.D.

ASSISTANT DEAN
Mazen Tabbara, Ph.D.

CHAIRS
Jean Chatila, Ph.D.
Samer Saab, Ph.D.
Pierrette Zouein, Ph.D.

FACULTY
Grace Abou Jaoude, Ph.D.
Chadi Abou-Rjeily, Ph.D.
Barbar Akle, Ph.D.
Jean Paul Arnaout, Ph.D.
Rita Awwad, PhD.
Elie Badr, Ph.D.
Jean Chatila, Ph.D.
Wissam Fawaz, Ph.D.
Raymond Ghajar, Ph.D.
Wassim Habchi, Ph.D.
Ramy Harik, Ph.D.
Camille Issa, Ph.D.
Jimmy Issa, Ph.D.
Gebran Karam, Ph.D.
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John Khoury, PhD.
Michel Khoury, Ph.D.
Zahi Nakad, Ph.D.
George Nasr, Ph.D.
Iyad Ouaiss, Ph.D.
Samer Saab, Ph.D.
Abdallah Sfeir, Ph.D.
Mazen Tabbara, Ph.D.
Pierrette Zouein, Ph.D.

UNDERGRADUATE PROGRAMS
The School of Engineering offers Bachelor of Engineering (B.E.) degrees in:

- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Industrial Engineering
- Mechanical Engineering

With Minors in:
- Packaging
- Environmental Sciences

GRADUATE PROGRAMS
The School of Engineering offers Master of Science (M.S.) degrees in:

- Civil and Environmental Engineering
- Computer Engineering
- Industrial Engineering and Engineering Management

INSTITUTES

INSTITUTE FOR WATER RESOURCES & ENVIRONMENTAL TECHNOLOGIES (IWRET)

This institute aims to promote usable technology in areas of water resources, environmental protection, and agriculture in the Middle East. It seeks to initiate new ideas and venues for applied research.

CISCO INSTITUTE

This institute offers Cisco courses in computer networking, and trains Cisco instructors for the Middle East and North Africa (MENA) region. It also performs quality visits to regional and local Cisco academies in the MENA region. The visits are meant to ensure these academies are offering high-standard Cisco courses, and have the proper manpower and equipment resources to perform the work.
The School of Engineering

ENGINEERING FACILITIES

CIVIL ENGINEERING LABORATORIES

The Department of Civil Engineering at the School of Engineering is committed to providing hands-on measurements, and experimentation, as a viable component of the educational program. The Civil Engineering Laboratories provide undergraduate students with the state-of-the-art equipment for experimentation and demonstration 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 consultation, for several engineering firms, and private entities, 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 testing 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, peristaltic pumps, gas meters, centrifuges, incubators, and furnaces, in addition to mobile environmental monitoring stations for air pollution field measurements. 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 parameters, investigations in fresh and marine water quality, 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 continuous 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 conducted outside the laboratory room to gather field data. Reduction and calculation of field data for final result is done in the laboratory room. In addition, activities include: collecting and modifying topographic maps, preparing digitized and GIS referenced maps with related features, DGPS measurements, presenting a general overview of geography, population, climate, water resources, water flows, dams, wastewater, water withdrawals, irrigation and drainage, on maps, survey and collect 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 behavior, flow measurements, piping systems, pumps and their characteristics, flow conditions, open channels, turbines, suspended sediments and bed load analysis, river flows and characteristics, flow measuring 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 corresponding hydrographs, offer technical consultations on hydraulic, and hydrologic, flow problems.

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 manipulator 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. Experimentations 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 electric, and electronic, 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 area 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.

INDUSTRIAL AND MECHANICAL ENGINEERING LABORATORIES

The Fluid Mechanics Laboratory is equipped with adequate facilities, and equipment, to allow students to understand the behavior of fluids. It includes several means for measuring different fluid properties, fluid flow, fluid friction, calibration of weirs, orifices, pumps, turbines, hydraulic jumps, forces on gates, hydraulic benches, flow regimes identification, in addition to a five meter-long open channel with proper controls and mechanisms. It also includes Particle Image Velocimetry equipment that allows students to visualize fluid structures. Location: Flex 102.

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, plate and jacketed vessel heat exchangers, can be studied. Instrumentation is provided to allow the evaluation of the processes occurring in each heat exchanger. Location: Flex103.

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. Location: Flex 103.

The Internal Combustion Engines 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. Location: Flex 103.

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. Location: ARC 205.

The Manufacturing Laboratory features a four axis 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 modelled part. Location: ENG 604.

The 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 Brinell test machine to measure the hardness of metals. Location: ARC 205.

The Instrumentation Laboratory is an environment that helps students become familiar with instrumentation and measurement techniques. It features data acquisition modules connected to the computers and to which several types of sensors can be connected. Acquired data can be collected, analyzed processed and stored using LabVIEW software. This system also allows the students to develop their own virtual instruments. Location ENG 609A.

The Industrial Computing Laboratory is a general purpose computing lab equipped with 20 computers. It features state of the art engineering software such as Arena for simulation, Catia for ergonomics and manufacturing, JMP for quality control, Ansys and Comsol for thermofluids simulations, Fluent, AutoCad, etc. Location: ENG 605.

The Ergonomics Laboratory features equipment and software required for ergonomic design and analysis, such as an anthropometric kit, a thermo-anemometer, a sound level meter, a light meter, a psychometer with IR thermometer, a body composition monitor, a distance meter, and a baseline hydraulic dynamometer. In addition, the lab features workstations equipped with DELMIA software enabling the students to perform digital human measurement, human building, human task analysis, human posture analysis and human activity analysis. Location: ARC 602.

The Packaging Laboratory features an incline impact tester, a paper bursting machine, a cardboard bursting machine and a universal testing machine. The equipment allows students to analyze and perform tests on various packages and packaging materials. Location: Flex 101.

The Machine Shop includes a metal working area and a wood working area. It provides the students with hands-on experience in the use of tools and equipment used in manufacturing processes, such as lathes, saws, drilling machines, welding equipment, grooving machines, etc. Location: ARC 102.
Department Of Civil Engineering

DEPARTMENT OF CIVIL ENGINEERING
The Department of Civil Engineering offers the following degree programs:

• Bachelor of Engineering (B.E.) in Civil Engineering
• Master of Science (M.S.) in Civil and Environmental Engineering

UNDERGRADUATE PROGRAM:
B.E. IN CIVIL ENGINEERING

The Department of Civil Engineering at LAU provides a well-rounded quality and challenging engineering education that graduates dynamic and creative engineers. The program draws upon the broad resources of the comprehensive university that aspires to be among the top universities in the country and the region.

The Department of Civil Engineering is committed to providing students with a solid theoretical background, training in the latest design methods and proficiency in technological applications. Our graduates go on to pursue varied careers in design, construction, management and research.

The Department of Civil Engineering currently offers courses in the fields of:

• Construction Engineering
• Environmental Engineering
• Geotechnical Engineering
• Surveying
• Structural Engineering
• Transportation Engineering
• Water Resources Engineering

We prepare our graduates to be technically competent, talented, creative, and ethically responsible engineers who are effective professionals in today’s work environment. We keep them abreast of the latest technical software. This enables them to enrich their lives and make valuable contributions to their communities.

The total number of credits required for graduation is 150. This includes six technical elective courses, and seven courses with a separate industry standard software laboratory. Elective courses allow students to choose the emphasis, depending on their own interests and current market needs. Software courses enhance the learning experience and improve the marketability of our 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 Department of Civil Engineering at LAU is to provide students with a quality and challenging education, through innovative teaching, professional practice and community service, enabling the students to enrich their lives and make valuable contributions to their communities.

PROGRAM EDUCATIONAL OBJECTIVES
Within a few years of graduation, the graduates of the Civil Engineering program will:

1. Achieve success in their chosen career path be it professional practice or graduate studies.
2. Adapt to meet the changing requirements of the job market.
3. Be responsible citizen engineers.

PROGRAM OUTCOMES
The students will acquire in their matriculation through the program, the following skills, knowledge, and behaviors:

a. An ability to apply knowledge of mathematics, science, and engineering.
b. An ability to design and conduct experiments, as well as to analyze and interpret data.
c. An ability to design a system, component, or process, to meet the desired needs, within realistic constraints, such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
d. An ability to function on multidisciplinary teams.
e. An ability to identify, to formulate, and to solve engineering problems.
f. An understanding of one’s professional and ethical responsibility.
g. An ability to communicate effectively.
h. A broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and social context.
i. A Recognition of the need and the ability to engage in lifelong learning.
j. A Knowledge of contemporary issues.
k. An 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)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MTH 201</td>
<td>Calculus III</td>
<td>3</td>
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<tr>
<td>CHM 201</td>
<td>Chemical Principles</td>
<td>3</td>
</tr>
<tr>
<td>CIE 200</td>
<td>Statics</td>
<td>3</td>
</tr>
<tr>
<td>COE 212</td>
<td>Engineering Programming</td>
<td>3</td>
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<tr>
<td>COE 201</td>
<td>Computer Proficiency</td>
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<tr>
<td>MEE 211</td>
<td>Engineering Graphics</td>
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<tr>
<td>ENG 202</td>
<td>Sophomore Rhetoric</td>
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#### Spring Semester (17 credits)

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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>ARA 2--/3--</td>
<td>Arabic Language/Literature</td>
<td>3</td>
</tr>
<tr>
<td>HLT 201</td>
<td>Basic Health</td>
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<tr>
<td>CIE 202</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>MTH 206</td>
<td>Calculus IV</td>
<td>3</td>
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<tr>
<td>BIO200 or BIO203</td>
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<td>3</td>
</tr>
<tr>
<td>ETH 201</td>
<td>Moral Reasoning</td>
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</tr>
<tr>
<td>ENG 203</td>
<td>Fundamental of Oral Communication</td>
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#### Summer Module I (3 credits)

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#### Summer Module II (3 credits)

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<tr>
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### Second Year

#### Fall Semester (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>CIE 308</td>
<td>Construction Materials</td>
<td>3</td>
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<tr>
<td>CIE 309</td>
<td>Construction Materials–LAB</td>
<td>1</td>
</tr>
<tr>
<td>CIE 302</td>
<td>Structural Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>CIE 303</td>
<td>Structural Analysis - SOFT</td>
<td>1</td>
</tr>
<tr>
<td>CIE 320</td>
<td>Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>CIE 321</td>
<td>Fluid Mechanics–LAB</td>
<td>1</td>
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<tr>
<td>MTH 304</td>
<td>Differential Equations</td>
<td>3</td>
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#### Spring Semester (15 credits)

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>CIE 306</td>
<td>Concrete Structures I</td>
<td>3</td>
</tr>
<tr>
<td>CIE 307</td>
<td>Concrete Structures I–SOFT</td>
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<tr>
<td>CIE 322</td>
<td>Hydraulics</td>
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<td>CIE 323</td>
<td>Hydraulics–SOFT</td>
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<tr>
<td>CIE 304</td>
<td>Stress Analysis</td>
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<tr>
<td>CIE 305</td>
<td>Stress Analysis–LAB</td>
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<tr>
<td>CIE 360</td>
<td>Surveying</td>
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#### Summer Module I (6 credits)

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<tbody>
<tr>
<td>GNE 331</td>
<td>Probability and Statistics</td>
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<tr>
<td>GNE 301</td>
<td>Professional Communication</td>
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<tr>
<td>PED 2--</td>
<td>Physical Education</td>
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#### Summer Module II (6 credits)

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<th>Course Title</th>
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<td>---</td>
<td>Liberal Arts Curriculum Elective</td>
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<tr>
<td>INE 320</td>
<td>Engineering Economy I</td>
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### Third Year

#### Fall Semester (16 credits)

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>CIE 444</td>
<td>Soil Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>CIE 445</td>
<td>Soil Mechanics – LAB</td>
<td>1</td>
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<tr>
<td>CIE 424</td>
<td>Water Distribution &amp; Treatment</td>
<td>3</td>
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<tr>
<td>CIE 425</td>
<td>Environmental Engineering – LAB</td>
<td>1</td>
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<tr>
<td>CIE 460</td>
<td>Highway Engineering</td>
<td>3</td>
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<tr>
<td>CIE 461</td>
<td>Transportation Engineering – SOFT</td>
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<tr>
<td>CIE 480</td>
<td>Civil Eng. Management Fundamentals</td>
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<tr>
<td>GNE305</td>
<td>Professional Ethics</td>
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#### Spring Semester (15 credits)

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CIE 426</td>
<td>Wastewater Collection &amp; Treatment</td>
<td>3</td>
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<tr>
<td>CIE 427</td>
<td>Environmental Engineering – SOFT</td>
<td>1</td>
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<tr>
<td>CIE 446</td>
<td>Foundation Engineering</td>
<td>3</td>
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<tr>
<td>CIE 447</td>
<td>Geotechnical Engineering – SOFT</td>
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<tr>
<td>CIE 465</td>
<td>Transportation Systems Engineering</td>
<td>3</td>
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<tr>
<td>CIE 485</td>
<td>Construction Management</td>
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<tr>
<td>CIE 486</td>
<td>Construction Management – SOFT</td>
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#### Summer Module I (6 credits)

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<tr>
<td>CIE 498</td>
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### Fourth Year

#### Fall Semester (16 credits)

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<tr>
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<tbody>
<tr>
<td>CIE 601</td>
<td>Project I</td>
<td>3</td>
</tr>
<tr>
<td>CIE 436</td>
<td>Detailing for Civil Engineers</td>
<td>2</td>
</tr>
<tr>
<td>CIE 434</td>
<td>The Civil Engineering Profession</td>
<td>2</td>
</tr>
<tr>
<td>CIE ---</td>
<td>Technical Elective</td>
<td>3</td>
</tr>
<tr>
<td>CIE ---</td>
<td>Technical Elective</td>
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<tr>
<td>CIE ---</td>
<td>Technical Elective</td>
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#### Spring Semester (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CIE 400</td>
<td>Steel Structures</td>
<td>3</td>
</tr>
<tr>
<td>CIE ---</td>
<td>Technical Elective</td>
<td>3</td>
</tr>
<tr>
<td>CIE ---</td>
<td>Technical Elective</td>
<td>3</td>
</tr>
<tr>
<td>CIE ---</td>
<td>Technical Elective</td>
<td>3</td>
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<tr>
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### Technical Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CIE510</td>
<td>Finite Element Method I</td>
<td>3</td>
</tr>
<tr>
<td>CIE512</td>
<td>Concrete Structures II</td>
<td>3</td>
</tr>
<tr>
<td>CIE520</td>
<td>Solid Waste Management</td>
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<tr>
<td>CIE521</td>
<td>Hydrology</td>
<td>3</td>
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<tr>
<td>CIE522</td>
<td>Environmental impact Assessment</td>
<td>3</td>
</tr>
<tr>
<td>CIE525</td>
<td>Environmental Policy and Management</td>
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<tr>
<td>CIE526</td>
<td>Environmental Remediation</td>
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</tr>
<tr>
<td>CIE563</td>
<td>Transportation Planning and Land Use</td>
<td>3</td>
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<tr>
<td>CIE564</td>
<td>Mass Transit Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIE582</td>
<td>Infrastructure Management</td>
<td>3</td>
</tr>
<tr>
<td>CIE584</td>
<td>Quality Management Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIE585</td>
<td>Risk and Natural Hazard Management</td>
<td>3</td>
</tr>
<tr>
<td>CIE 517</td>
<td>Earthquake Analysis of Structures</td>
<td>3</td>
</tr>
<tr>
<td>CIE 540</td>
<td>Advanced Geotechnical Engineering</td>
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COURSE DESCRIPTIONS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lecture/Lab Hours</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CIE 586</td>
<td>Construction Decision under Uncertainty</td>
<td>3</td>
<td></td>
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<tr>
<td>CIE587</td>
<td>Construction Cost Engineering</td>
<td>3</td>
<td></td>
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<tr>
<td>CIE600</td>
<td>Topics in Civil Engineering</td>
<td>3</td>
<td></td>
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<tr>
<td>CIE602</td>
<td>Project II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or any other technically related course approved by the department.</td>
<td></td>
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</table>

CIE200 Statics [3-0, 3 cr.]
Review of vector algebra; force system resultants; equilibrium of a particle and rigid body; internal forces and applications to beams, trusses and frames; shear and moment diagrams for beams; centroid and moment of inertia.
Pre-requisite: MTH102 and PHY111

CIE202 Mechanics of Materials [3-0, 3 cr.]
Review of equilibrium principles; types of stress and linear stress-strain relationships; axial, shear, torsion, and bending deformations; shear force and bending moment diagrams; and deflection of beams by integration.
Pre-requisite: CIE200 Statics.

CIE302 Structural Analysis I [3-0, 3 cr.]
Classification of statically determinate/indeterminate structures; deflections using the principle of virtual work; introduction to matrix algebra, analysis of statically indeterminate structures using Flexibility Method and Stiffness Method;

*CIE303 Structural Analysis I – SOFT [0-2, 1 cr.]
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; deformed shapes.
Co-requisite: CIE302 Structural Analysis I.

CIE304 Stress Analysis [3-0, 3 cr.]
Stress-strain formulations in 1-D, 2-D, and 3-D; introduction to constitutive theories of materials and failure criteria for engineering materials; design and analysis of pressure vessels; elastic stability and simple buckling problems of columns, plates and shells; introduction to linear elastic fracture mechanics (LEFM) concepts and integrated design.

*CIE305 Stress Analysis – LAB [0-3, 1 cr.]
Laboratory demonstration of stress analysis concepts including: stress and strain measurements, failure of materials, elastic stability, and fracture mechanics.
Co-requisite: CIE304 Stress Analysis.
*Course is a co-requisite to the corresponding course.

CIE306 Concrete Structures I [3-0, 3 cr.]
Analysis and design of reinforced concrete members according to ACI code including: beams, solid and ribbed one-way slabs, T-beams, doubly reinforced beams, short columns, including development length and splicing of reinforcing steel bars.
Pre-requisite: CIE302 Structural Analysis I and CIE308 Construction Materials.

*CIE307 Concrete Structures I – SOFT [0-2, 1 cr.]
Concrete design using commercial software according to established codes. Results visualization and assessment for beams, slabs, columns and footings: concrete section, reinforcement, development length, reinforcement layout.
Co-requisite: CIE306 Concrete Structures I.

CIE308 Construction Materials [3-0, 3 cr.]
Introduction to the geological origins of construction materials and the effects of geological processes. General considerations on the use of materials in construction, required properties, selection, testing, design, and quality control of civil engineering materials. Design and testing of ordinary Portland cement concrete, asphaltic concrete, masonry, steel, and wood construction; overview of composites and other materials in civil engineering.

*CIE309 Construction Materials – LAB [0-3, 1 cr.]
Laboratory demonstration of materials testing and evaluation methods with emphasis on aggregate, concrete, and steel reinforcement testing as per national and international standard methods and specifications.
Co-requisite: CIE308 Construction Materials.

CIE320 Fluid Mechanics [3-0, 3 cr.]
properties of fluids; hydrostatics and kinematics; basic equations and conservation laws; mass, energy, and momentum; Reynolds Transport Theorem; steady laminar and turbulent pipe flow; dimensional analysis and similarity, flow measurements,
Pre-requisite: CIE200 Statics.

* CIE321 Fluid Mechanics – LAB [0-3, 1 cr.]
laboratory applications in fluid mechanics including fluid measurements and properties; flow in pipes; Reynolds number; forces on gates; orifices; weirs; open channel flow; and pumps.
Co-requisite: CIE320 Fluid Mechanics.

CIE322 Hydraulics [3-0, 3 cr.]
Review of governing equations, design of municipal water supply and distribution systems, flow in pipes and flow regimes; methods of flow measurements; open channel flow with gradually varied flow computations; hydraulic machinery. Introduction to spillways, reservoir routing, well hydraulics and drawdown.
Pre-requisite: CIE320 Fluid Mechanics.

* CIE323 Hydraulics – SOFT [0-2, 1 cr.]
analysis and design using commercially available software: municipal water distribution systems including pipes, reservoir, pumps and losses. Results visualizations and assessment: pressure, velocity, head losses.
Co-requisite: CIE322 Hydraulics.

CIE360 Surveying [2-3, 3 cr.]
types of surveys and maps, theory of measurements and errors, survey equipment and field notes; horizontal distance measurements and slope computations; leveling-theory, equipment, and measurements; angles, bearings, azimuths, and compass; and length, area, volumes and mass diagrams; topography-maps, surveys, and contours; horizontal and vertical curves; photogrammetry- aerial cameras, maps and scales; public land surveys; GPS and GIS.
Pre-requisite: MEE211 Engineering Graphics

CIE400 Steel Structures [3-0, 3 cr.]
introduction to the AISC-LRFD design philosophy; discussion of the behavior, analysis and design of steel structures; design of tension members, simple bolted connections, introduction to welded connections, compression members, laterally supported beams, beams under torsion, and lateral torsional loading.
Pre-requisite: CIE302 Structural Analysis I and CIE304 Stress Analysis.

CIE424 Water Distribution and Treatment [3-0, 3cr.]
physical, chemical and biological water quality parameters and standards; water quantity, population estimation and use factors; methods of distribution and design criteria and periods; stresses in pipes and pipe materials, distribution system related appurtenances; water treatment techniques; purpose, sedimentation, thickening, coagulation/flocculation processes and basin design, filtration, disinfection.
Pre-requisite: CIE322 Hydraulics.

CIE425 Environmental Engineering – LAB [0-3, 1 cr.]
fundamental quantities, titration, standards, physical, chemical and biological water and wastewater characteristics and parameter determination using standard methods, data reduction, analysis and interpretation.
Pre-requisite: CHM201 Chemical Principles and co-requisite: CIE424 Water Distribution and Treatment.

CIE426 Wastewater Collection and Treatment [3-0, 3 cr.]
design of sanitary and storm sewers and related appurtenances, mass balances and hydraulic flow regimes; reaction order and rates, analysis of experimental data, attached and suspended growth biological wastewater treatment systems including: activated sludge and its variations, aerated lagoons, SBR, trickling filters, RBC; basic nitrification-denitrification processes; oxygen requirements; introduction to sludge treatment and disposal.
Pre-requisite: CIE 424 Water Distribution and Treatment.

CIE427 Environmental Engineering – SOFT [0-2, 1 cr.]
analysis and design of wastewater treatment plants using commercially available software:
sizing of tanks; and effluent concentration. Results visualizations and assessment.

Co-requisite: CIE426 Wastewater Collection and Treatment.

**CIE434 The Civil Engineering Profession [2-0, 2 cr.]**
Introduction to the history and heritage of civil engineering; specialized sub disciplines; professionalism and professional registration and societies; continuing education; impact of historical and contemporary issues on the identification, formulation, and solution of engineering problems, impact of engineering solutions on the economy, environment, political landscape, and society. The course involves teamwork researching topics related to the impact of contemporary engineering solutions.

Pre-requisite: fourth year standing

**CIE436 Detailing for Civil Engineers [0-2, 2 cr.]**
An introduction to computer-aided drafting techniques and design drawings using a CAD program and sketching to generate two and three dimensional drawings based on the conventions of engineering graphical communication, applications to different Civil Engineering areas of specialty. A required team effort project introduces the preparation of working design drawings and consideration of production methods.

Pre-requisite MEE 211 Engineering Graphics.

**CIE444 Soil Mechanics [3-0, 3 cr.]**
Formation and types of soils, field testing and soil classification, permeability and seepage analysis in saturated soils, stresses in a soil mass, total and effective stress analysis, stress-strain relationships and strength properties of soils, failure criteria, and theory of consolidation.

Pre-requisite: CIE308 Construction Materials.

*CIE445 Soil Mechanics – LAB [0-3, 1 cr.]*
Laboratory testing for properties and characteristics of soils including: classification tests, soil compaction and relative density, hydraulic conductivity, shear strength tests, and consolidation test.

Co-requisite: CIE444 Soil Mechanics.

**CIE446 Foundation Engineering [3-0, 3 cr.]**
Analysis, design and construction aspects of foundations including: subsurface exploration and soil characterization; design of shallow foundations based on bearing capacity and settlement calculations; earth pressure theories and design of typical retaining structures; introduction to deep foundations design.

Pre-requisite: CIE444 Soil Mechanics.

*CIE447 Geotechnical Engineering – SOFT [0-2, 1 cr.]*
Geotechnical analysis and design using commercial software including design of foundations and lateral earth retaining systems. Results visualizations and assessment.

Co-requisite: CIE446 Foundation Engineering.

**CIE460 Highway Engineering [3-0, 3 cr.]**
Planning, design, and operation of transportation systems. Theory and practice of the geometric design of streets and highways including horizontal and vertical curves, traffic flow modeling, analysis, control, and safety. Introduction to the design of intersections, and interchanges. Introduction to pavement design principles.

Pre-requisite: CIE360 Surveying.

*CIE461 Transportation Engineering – SOFT [0-2, 1 cr.]*
Highway design using commercial software integrating planning, geometric design, traffic modeling and GIS systems. Results visualizations and assessment.

Co-requisite: CIE460 Highway Engineering.

**CIE465 Transportation Systems Engineering [3-0, 3 cr.]**
Road vehicle performance, analysis and design of infrastructure systems, components of highway systems; planning and design of freeway interchanges, highway capacity and quality of service using High Capacity Manual methodologies, fundamentals of traffic flow theory and queuing analysis, traffic control and analysis of intersections, travel demand and forecasting.

Pre-requisite: CIE460 Highway Engineering.
CIE480 Civil Engineering Management Fundamentals [3-0, 3 cr.]
Organization and management theory, understanding of business fundamentals as applied in the private, government and non-profit sectors; public policy; public administration fundamentals with applications. Principles of leadership, government regulations and responsibilities of the different parties involved in public construction, bonds and insurance requirements, funding mechanisms, dispute resolution processes, professional ethics.
Pre-requisite: INE 320 Engineering Economy and Co-requisite GNE305 Professional Ethics.

CIE485 Construction Management [3-0, 3 cr.]
Construction contracting processes, development of the different phases of a construction project, quantity take-off and price estimating, proposal preparation; scheduling methods and networks, application of construction control tools such as: CPM, PERT, repetitive scheduling method; resource allocation and leveling, time-cost tradeoff; budgeting and cost control, and quality control.
Pre-requisite: CIE480 Civil Engineering Management Fundamentals.

*CIE486 Construction Management – SOFT [0-2, 1 cr.]
Use of commercial software for the operations, scheduling, planning, resource allocation, budgeting and control of construction projects.
Co-requisite: CIE485 Construction Management.

CIE498 Professional Experience [0-6, 6 cr.]
Professional experience through training in the execution of real-life engineering projects.

CIE510 Finite Element Method I [3-0, 3 cr.]

CIE512 Concrete Structures II [3-0, 3 cr.]
Design of: deep beams reinforced for shear and torsion; stair cases, slender columns, two-way column-supported slabs, footings, foundation and retaining walls.

Pre-requisite: CIE306 Concrete Structures I and CIE444 Soil Mechanics.

CIE517 Earthquake Analysis of Structures [3-0, 3 cr.]
Introduction to earthquake engineering including plate tectonics with emphasis on seismicity of Lebanon; introduction to structural dynamics and natural modes of vibrations, determination of earthquake loading on structures; computer analysis of structural response.
Pre-requisites: CIE302 Structural Analysis I and CIE303 Structural Analysis I-Soft

CIE520 Solid Waste Management [3-0, 3 cr.]
Quantity and quality of municipal and industrial solid wastes, collection, transfer, disposal, treatment and recovery of solid wastes, hazardous and non-hazardous residues, solid waste management principles and processes, environmental impact assessment, environmental legislation and risk, and pollution control management.
Pre-requisite: 4th year standing

CIE521 Hydrology [3-0, 3 cr.]
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 frequency analysis, and introduction to hydrologic modeling.
Pre-requisite: 4th year standing.

CIE522 Environmental Impact Assessment [3-0, 3 cr.]
This course is the study and evaluation of the impacts of large scale projects on the quality of the physical, biological, and socio-economic environment taking into account environmental laws and regulations and EIA guidelines, identification of impacts, quantification methods, mitigation measures, and monitoring plans. Case study involving the preparation of an EIA report.
Pre-requisite: consent of instructor or senior standing.
CIE525 Environmental Policy and Management [3-0, 3 cr.]
This course explores human made problems in the environment parallel with concepts in environmental ethics, management and policies so as solutions are provided concerning preservation of the environment. Topics covered are toxic and solid wastes, pollution of air, water, food and soil, international and national environmental ethics, management and policies.
Pre-requisite: senior standing

CIE526 Environmental Remediation [3-0, 3 cr.]
This course deals with processes employing microorganisms, fungi, plants or their enzymes to return contaminated environments, such as polluted waters and soils, to their natural conditions. The control, optimization and monitoring of bioremediation is discussed as well as the environmental factors and microbial populations involved. In-situ, ex-situ applications and genetic engineering approaches are emphasized.
Pre-requisite: senior standing

CIE540 Advanced Geotechnical Engineering [3-0, 3 cr.]
Advanced topics in geotechnical engineering including: Load and Resistance Factor Design (LRFD); design of deep foundations for axial and lateral loading; two-dimensional limiting equilibrium methods of slope stability analysis; design methods for slope stabilization; design of shoring systems such as diaphragm walls, sheet-pile walls, anchored walls, and braced excavations.
Pre-requisite: CIE 446 Foundation Engineering

CIE563 Transportation Planning and Land Use [3-0, 3 cr.]
Interaction between transportation and land use variables, including modeling requirements, impacts, and data needs within the context of good community planning and economic development; transportation management; administration, finance, system evaluation, implementation, and integration.
Pre-requisites CIE465 Transportation Systems Engineering and GNE 331 Probability and Statistics

CIE564 Mass Transit Systems [3-0, 3 cr.]
An overview of mass transit systems; transit system planning including demand and cost analysis and evaluation; transit system design including route design, scheduling, and fare policy; transit networks and marketing; para transit systems; future trends in mass transit.
Pre-requisites INE320 Engineering Economy and CIE465 Transportation Systems Engineering

CIE582 Infrastructure Management [3-0, 3 cr.]
General methods of engineering systems management and the different types of infrastructure. Application of different methods for the planning and analysis of complex infrastructure projects considering possible financing alternatives, engineering solutions, and overall management issues during the life cycle of the project. Review of selected case studies from the Arab Gulf countries.
Pre-requisite: CIE 485 Construction Management

CIE584 Quality Management Systems [3-0, 3 cr.]
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.
Pre-requisite: 4th year standing

CIE585 Risk and Natural Hazard Management [3-0, 3 cr.]
Types, frequency, effects of natural hazards, calculation of return period, planning and designing engineering systems to survive natural events, mitigation of damage.
Pre-requisite: GNE331 Probability and Statistics.

CIE586 Construction Decisions under Uncertainty [3-0, 3 cr.]
Application of decision analysis theory to construction project and organization decisions under uncertainty; decision trees and sensitivity analysis, utility assessment, multi-attribute utility theory, multiple sampling and decision strategies; bidding theory and use of probabilistic modeling and Monte-Carlo simulation to determine optimal bidding strategies.
Pre-requisites CIE480 Civil Engineering Management Fundamentals and GNE 331 Probability and Statistics.
CIE587 Construction Cost Engineering [3-0, 3 cr.]
Cost engineering for construction organizations, projects, and operations. Construction financial accounting, project monitoring and cost controlling; construction financing, break even analysis, profit, earned value, balance sheets, and cash flow analyses; Cost indices, parametric estimates, unit price proposals, quantity take-off, cost estimation and bid preparation.
Pre-requisite CIE485 Construction Management

CIE600 Topics in Civil Engineering [3-0, 3 cr.]
Special topic relevant to civil engineering. Course title and content are announced prior to registration time.
Pre-requisite: To be announced prior to registration time.

CIE601 Project I [3-0, 3 cr.]
This course provides students with a design experience that is as close as possible to real life design projects; students will work on multidisciplinary teams according to a team work plan and under the supervision of fulltime faculty; each team meets separately with their advisors as needed to complete the work on the project but not less than three times during the semester; students choose from a set of predefined projects that have been approved by the department.
Co-requisite: CIE498 Professional Practice.

CIE602 Project II [3-0, 3 cr.]
Independent work performed by student with emphasis on research. Selection of topic and progress of work are supervised by a faculty advisor. Formal technical report and presentation are required.
Pre-requisite: CIE601 Project I and Consent of instructor.

MINOR IN ENVIRONMENTAL SCIENCE

Administered jointly by the Department of Civil Engineering and the Department of Natural Sciences

The minor in Environmental Science is an interdisciplinary program, which gives students the opportunity to examine environmental issues from a variety of perspectives. The knowledge of environmental science major issues is central to theories and research in chemistry, biology, civil engineering, as well as social science, business, and public policy. The purpose of this program is to provide students with the broad conceptual framework of environmental issues and to offer a new global vision of this interesting discipline. A Minor in Environmental Science aims at providing quality education to interested students and enriching their knowledge in existing global environmental issues and problems. It is expected to expose them to important issues related to environmental problems and their causes, including but not limited to ecosystems and how they work, deforestation, loss of biodiversity, species extinction, air pollution, global warming, ozone depletion, solid waste disposal, and renewable energy. Concepts in environmental ethics, management and policies concerning preservation of the environment will also be provided. Additionally it covers topics related to the study of natural and non-natural chemical and microbiological substances in the environment and their transformations, ending with remediation to most of environmental pollution issues.

EDUCATIONALOBJECTIVES

1. Provide students with an understanding of the social, economic, political and legal framework of environmental issues
2. Provide students with enough background to be able to collect, analyze and formulate possible solutions to environmental problems.
3. Provide students with understanding of the intertwining effects and impacts of human activities on the world vital natural resources.
4. Better prepare students for the job market.

STUDENT OUTCOMES

a. Understand the underlying concepts and principles associated with environmental science.

b. Identify sources of water, soil and air pollutants.
c. Demonstrate familiarity with the practical/field dimensions of a range of environmental problems and issues.

d. Understand the interrelationships between society, economy and environment.

e. Ability to critically review environmental impact assessment reports.

f. Discuss remediation strategies of a variety of environmental contaminants.

g. Recognize potential harmful role of human being in shaping the environment.

MINOR REQUIREMENTS

Minor in Environmental Science students must complete a minimum of 18 credits (9 core credits, 9 elective credits)

Core Courses (9 Cr)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENV200</td>
<td>Introduction to Environmental Science</td>
<td>3</td>
</tr>
<tr>
<td>ENV 402/CIE525</td>
<td>Environmental Policy and Management</td>
<td>3</td>
</tr>
<tr>
<td>ENV422/CIE522</td>
<td>Environmental Impact Assessment</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Courses (9 Cr)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM340</td>
<td>Environmental chemistry</td>
<td>3</td>
</tr>
<tr>
<td>BIO203</td>
<td>Introduction to Ecology</td>
<td>3</td>
</tr>
<tr>
<td>ENV423</td>
<td>Environmental Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>CIE424</td>
<td>Water Distribution and Treatment</td>
<td>3</td>
</tr>
<tr>
<td>CIE 520</td>
<td>Solid Waste Management</td>
<td>3</td>
</tr>
<tr>
<td>CIE585</td>
<td>Risk and Natural Hazard Management</td>
<td>3</td>
</tr>
<tr>
<td>ENV426/CIE526</td>
<td>Environmental Remediation</td>
<td>3</td>
</tr>
<tr>
<td>ENV427</td>
<td>Environmental Physics</td>
<td>3</td>
</tr>
</tbody>
</table>

*May replace ENV200 for engineering students only. Also, it can be substituted with BIO 331 (Ecology) for biology students. CIE course are considered as CIE technical electives for civil engineering students.

COURSE DESCRIPTIONS

BIO203 Introduction to Ecology [3-0, 3 cr.]

This course introduces the organization of individual organisms into populations, communities, and ecosystems. It focuses on the interactions between living organisms and their physical environment. Concepts such as diversity, competition, natural selection, adaptation, climate changes, migration, extinction and deforestation are covered. Additionally the course tackles concepts of environmental microbiology in relation to pollution, remediation and recycling of liquid and solid wastes.

CHM340 Environmental Chemistry [3-0, 3 cr.]

This course is a study of natural and non-natural chemical substances in the environment and their chemical transformations. It involves chemistry of energy resources, atmosphere, hydrosphere, biosphere, and, lithosphere (natural and in polluted environment). Principles of chemical reactions, chemical equilibrium and reaction kinetics are applied in this course. Other covered topic is waste treatment and chemical processes. Parallel with these is learning the methods of environmental chemical analysis.

ENV200 Introduction to Environmental Science [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.

ENV423 Environmental Microbiology [2-3, 3 cr.]

This ecologically based course discusses the relationship of microorganisms with one another and with their environment. It stresses the three major domains of life – Eucaryota, Archaea and Bacteria and studies their diversity, interactions and physiology in their natural environments. Biodegradation of organic matter, bio-geo-cycling of minerals and waste bio-treatment are emphasized. The course also deals with metagenomic, metaproteomic techniques and applications as well as the use of microarrays in Microbial Ecology.

ENV427 Environmental Physics [3-0, 3 cr.]

The course comprises aspects of atmospheric physics, soil physics and many aspects of applied physics. It introduces the essentials in environmental physics, and describes the basics in environmental spectroscopy e.g. black body radiation and the solar UV and Life. It also addresses the global climate, energy balance, energy available for human use, transport of pollutants, and noise pollution. The course also discusses risk estimations, energy saving and nature and future thinking in the context of the global society.

CIE course descriptions are included in relevant sections of this academic catalogue.
Graduate Program

The Department of Civil Engineering at LAU offers a comprehensive program leading to the degree of Master of Science (M.S.) in Civil and Environmental Engineering (CEE) with one of three emphases: (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 graduate students with a sound professional and academic training in civil engineering, giving them access to a variety of courses in their area of study, as well as the opportunity to conduct research, thus combining the theoretical and the applied aspects of civil engineering.

The program is designed to stimulate independent thinking and the acquisition of knowledge, as well as the application of acquired knowledge and skills to the solution of practical engineering problems. The program provides an in-depth experience with one or more particular fields of Civil Engineering, while simultaneously exposing the student to cross-disciplinary issues and topics that affect the engineering and management of systems.

Flexibility is a key benefit of this program as it allows students to plan their degree in line with their long-term career goals, and to be consistent with any professional experience and prior training they may have. The M.S. – CEE Degree may be completed with or without a thesis.

MISSION

The mission of the graduate program in Civil and Environmental Engineering at LAU is to provide students with a well-rounded set of career skills that empowers them to address a wide range of problems through exposure to an advanced body of knowledge and scholarly endeavours.

PROGRAM EDUCATIONAL OBJECTIVES

The purpose of the Graduate Program in Civil and Environmental Engineering is to:

1. Train students to develop the methodology and necessary skills to explore emerging issues in engineering and science.
2. Provide 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.
3. Train the students in an active research environment, to equip them with the latest tools of research, and to prepare them for further study toward the Doctoral Degree.

STUDENT LEARNING OUTCOMES

Graduates of the M.S. – CEE Programs will be able to:

a. Reinforce skills developed 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 M.S. - CEE can be grouped into the following three concentrations or emphasis areas:

1. INFRASTRUCTURE AND CONSTRUCTION MANAGEMENT:

   This is designed to prepare the graduates to meet the challenges of planning, financing, designing, building and managing public and private infrastructure under growing technical, financial, social and environmental constraints.

2. ENVIRONMENTAL SCIENCE, ENGINEERING AND MANAGEMENT:

   This is designed to prepare graduates to meet the challenges of sustainable development and natural resources management while protecting the environment.

3. ENGINEERING MECHANICS:

   This is designed to prepare graduates to meet the challenges of designing technically efficient, cost-effective, and state-of-the-art facilities that are responsive to natural hazards and economic constraints.
ADMISSION REQUIREMENTS

Applicants for admissions to this program must have a Bachelor of Science in Engineering, or a Bachelor of Engineering Degree, from a recognized 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 Academic Rules and Regulations for Graduate Programs.

The GRE general exam is required of all applicants (GRE subject exams are not required). All applicants must submit scores for the GRE general exam (includes verbal reasoning, quantitative reasoning, and analytical writing scores). Your GRE test scores are an important part of your application. GRE test scores that are more than 5 years old will not be accepted.

The admissions committee considers several factors when making admission decisions: your academic performance at prior institutions (grades, rankings, and GPAs) and your GRE test score. The rate of graduate assistantship (GA), when requested, is directly related to your GPA and GRE scores. Letters of recommendation are optional; however, three letters are recommended, two of which to be completed by faculty who are familiar with your academic performance.

M.S. – CEE Requirements

Students are required to complete 30 credits for graduation. A student in the program can choose to pursue either a thesis or a non-thesis option. Students who take the thesis option are required to complete a six-credit thesis. The remaining credits can be completed according to the course requirements in each concentration or emphasis area, as specified below. The breadth requirements consist of six courses (18 credit hours) for all of the emphasis areas. The student should take at least the equivalent of 18 credits in engineering courses.

Students with a Bachelor of Engineering (B.E.) degree who are pursuing a M.S. degree may transfer up to six credits from their B.E. degree, provided that the transferred credits correspond to courses labelled graduate courses and the student has scored, at least, a grade of “B” on each of these courses. The transfer of credits is governed by the Rules and Regulations for Graduate Programs.

In order to satisfy the requirements for the M.S. - CEE 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

Infrastructure and Construction Management

The student is required to complete at least four courses from Infrastructure and Construction Management, one course from Optimization (please refer to the Industrial and Mechanical Engineering Department for courses in Optimization), and any course offered by the School of Engineering.

Environmental Science, Engineering and Management

The student is required to complete at least four courses from Environmental Science, Engineering and Management, and any two courses offered by the School of Engineering.

Engineering Mechanics

The student is required to complete, at least, four courses from Engineering Mechanics, and any two courses offered by the School of Engineering.

Remaining courses may be taken from any graduate program of the School of Engineering, or any approved graduate course in the university, including Business, International Affairs, Biology, Toxicology, Chemistry, and Computer Science.

It is recommended that the remaining courses in each program/emphasis area are chosen in the thesis area, if a thesis option is selected, and is done in consultation with the student’s advisor. It is important to note that offering courses in a specific concentration area is contingent on adequate enrolment in that specific course/area.
COURSE LISTINGS

Infrastructure and Construction Management

- CIE760 Transportation Engineering II 3
- CIE761 Traffic Engineering 3
- CIE782 Infrastructure Management 3
- CIE784 Quality Management Systems 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
- CIE789 Cost Engineering and Control 3
- CIE790 Construction Methods 3
- CIE791 Project Scheduling 3
- CIE792 Project Contracting 3

Environmental Science, Engineering and Management

- CIE720 Solid Waste Management 3
- CIE721 Hydrology 3
- CIE722 Environmental Impact Assessment 3
- CIE723 Water Resources: Planning and Management 3
- CIE724 Air Quality Management 3
- CIE725 Geo-environmental Engineering 3
- CIE726 Unit Operations of Water Treatment Systems 3
- CIE727 Unit Operations of Wastewater Treatment Systems 3
- CIE728 Fate & Transport of Pollutants in the Environment 3
- CIE729 Hydrogeology 3
- CIE730 Irrigation and Drainage 3
- CIE731 Urban Water Resources 3
- CIE732 Advanced Environmental Engineering 3
- CIE733 Groundwater Engineering 3

Engineering Mechanics

- CIE700 Steel Structures 3
- CIE701 Finite Element Methods 3
- CIE704 Case Histories in Structural & Geotechnical Engineering 3
- CIE705 Computational Hydraulics 3
- CIE706 Structural Dynamics 3
- CIE707 Earthquake Engineering 3
- CIE708 Applied Elasticity 3
- CIE709 Advanced Concrete Design 3
- CIE710 Pre-stressed Concrete Design 3
- CIE711 Pavement Design 3
- CIE712 Design of Hydraulic Structures 3
- CIE742 Foundations Engineering 3

Other Courses (12 credits)

- CIE799 Special Topics Course 3
- CIE891 Project course 3
- CIE899 Thesis 6

COURSE DESCRIPTIONS

CIE700 Steel Structures [3-0, 3 cr.]

This course is an introduction to the LRFD philosophy. It covers the behaviour 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.

Pre-requisites: 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 and error estimation. It also covers stress analysis using commercial software.


CIE704 Case Histories in Structural and Geotechnical Engineering [3-0, 3 cr.]

This course is a selection of case histories in structural and geotechnical 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.


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.

Pre-requisite: 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.

Pre-requisite: 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.

Pre-requisites: 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.

CIE709 Advanced Concrete Design [3-0, 3 cr.]
This course covers advanced topics in concrete design that include: Combined Footings, Retaining Walls, Mat Foundations, Pile Caps, Torsion, Walls, Shell Structures, Computer Aided Design of Concrete, in addition to other topics of interest.

Pre-requisites: CIE306 Concrete Structures I and CIE446 Foundation Engineering.

CIE710 Pre-stressed Concrete Design [3-0, 3 cr.]
This course covers the design of pre-stressed concrete structures, with an emphasis on flexural design of beams and slabs.

Pre-requisite: CIE306 Concrete Structures I.

CIE711 Pavement Design [3-0, 3 cr.]
This course covers the beam on elastic foundation, rigid and flexible pavements, highway and airport pavements, pavement performance and pavement systems management and maintenance.

Pre-requisites: CIE460 Highway Engineering I and CIE444 Soil Mechanics.

CIE712 Design of Hydraulics Structures [3-0, 3 cr.]
This course covers the history and background, function, planning process, types, analysis and design of culverts and bridge openings, dam appurtenances, intakes, aprons, chute blocks, spillways and drop structures. It also covers dam safety, stability and protection against scour.

Pre-requisites: CIE322 Hydraulics and CIE306 Concrete Structures I.

CIE720 Solid Waste Management [3-0, 3 cr.]
This course covers the quantity and quality of municipal and industrial solid wastes; 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.

Pre-requisite: Consent of the instructor.

CIE721 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, urban hydrology, hydrograph routing, probability in hydrologic design and the introduction to hydrologic modeling.

Pre-requisite: CIE322 Hydraulics.

CIE722 Environmental Impact Assessment [3-0, 3 cr.]
This course covers the study and evaluation of the impacts of large-scale projects on the quality of the physical, biological and socio-economical environment, taking into account environmental laws and regulations as well as environmental impact assessment guidelines. The course covers the identification of impacts, quantification methods, mitigation measures, and monitoring plans. The course deals with a case study involving the preparation of an environmental impact assessment report.

Pre-requisite: Consent of the instructor.

CIE723 Water Resources Planning and Management [3-0, 3 cr.]
This course covers the major issues in the planning and management of water resource systems, and the techniques — such as linear programming, dynamic programming and nonlinear programming — that are 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 modelling and flood and drought forecasting demonstrated are discussed with system analysis methods.

Pre-requisite: 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 modelling are discussed.
Pre-requisites: 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, as well as the applicability and use of geosynthetics.
Pre-requisite: 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.
Pre-requisite: CIE424 Water Distribution and Treatment

CIE727 Unit Operations of Wastewater Treatment Systems [3-0, 3 cr.]
This course covers wastewater characteristics and laboratory analysis, population kinetics and micro-organisms and their role in the various waste treatment processes, as well as process selection, oxidation kinetics, process modelling and control, sludge treatment and disposal, and unit operations and processes of wastewater treatment.
Pre-requisite: CIE426 Wastewater Collection and Treatment.

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.
Pre-requisites: 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.
Pre-requisite: 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.
Pre-requisite: 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.
Pre-requisite: 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.

Pre-requisite: CIE426 Wastewater Collection and Treatment.

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.

Pre-requisite: CIE721 Hydrology.

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.

Pre-requisite: 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.

Pre-requisite: CIE460 Highway Engineering.

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.

Pre-requisites: CIE306 Concrete Structures I, CIE400 Steel Structures, and CIE485 Construction Management.

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.

Pre-requisite: CIE485 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.

Pre-requisite: 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.

Pre-requisite: 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).

Pre-requisites: CIE460 Highway 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.

Pre-requisites: CIE306 Concrete Structures I, CIE400 Steel Structures, and CIE485 Construction Management.
CIE788 GIS and Remote Sensing [3-0, 3 cr.]
This course covers the fundamentals of sensing earth resources, data acquisition and analysis, 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.
Pre-requisite: 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.
Pre-requisite: CIE485 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, dewatering foundations, and rigging studies.
Pre-requisites: 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.
Pre-requisite: 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.
Pre-requisite: Consent of the instructor.

CIE799 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.
Pre-requisite: To be announced prior to registration time.

CIE891 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.
Pre-requisite: Consent of the instructor.

CIE899 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.
Pre-requisite: Consent of the instructor.
Department Of Electrical & Computer Engineering

The Department of Electrical and 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 PROGRAM

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, software, networks, and communications systems. In addition to the core topics in electrical and computer engineering, students are exposed to subjects including microprocessors, operating systems, computer architecture, database systems, networks, electronics, control systems, software engineering, reconfigurable computing, communications systems, and telecommunications. This provides for a balanced coverage and an integration of hardware, software, and communications engineering. As part of the academic program, six credits of professional experience are also included in the last summer prior to graduation, to give students an opportunity to integrate classroom instruction with practical work experience.

The broad scope of the program enables the students to pursue different career paths in the design and 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 is credit-based and requires the completion of 150 semester hours. A typical schedule is listed below and extends over a four-year period including summer modules; 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.

PROGRAM EDUCATIONAL OBJECTIVES

Within a few years of graduation, the graduates of the Computer Engineering program will:

1. Demonstrate technical aptitude in Computer Engineering careers and/or graduate studies
2. Establish themselves in diverse fields of Computer Engineering
3. Conduct themselves as effective professionals

PROGRAM OUTCOMES

The students will acquire in their matriculation through the program, the following skills, knowledge, and behaviors:

a. An ability to apply knowledge of mathematics, science, and engineering.
b. An ability to design and conduct experiments, as well as to analyze and interpret data.
c. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
d. An ability to function on multidisciplinary teams.
e. An ability to identify, to formulate, and to solve engineering problems.
f. An understanding of one’s professional and ethical responsibility.
g. An 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. A recognition of the need and the ability to engage in lifelong learning.
j. A knowledge of contemporary issues.
k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
## Major Requirements

### First Year

**Fall Semester (17 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG202</td>
<td>Sophomore Rhetoric</td>
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</tr>
<tr>
<td>PHY201</td>
<td>Electricity and Magnetism</td>
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</tr>
<tr>
<td>MTH201</td>
<td>Calculus III</td>
<td>3</td>
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<tr>
<td>COE212</td>
<td>Engineering Programming</td>
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<tr>
<td>GNE212</td>
<td>Engineering Mechanics</td>
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</tr>
<tr>
<td>COE201</td>
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**Spring Semester (16 credits)**

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<tbody>
<tr>
<td>MTH207</td>
<td>Discrete Structures I</td>
<td>3</td>
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<tr>
<td>ETH201</td>
<td>Moral Reasoning</td>
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<tr>
<td>MTH206</td>
<td>Calculus IV</td>
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<tr>
<td>MTH304</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>ELE201</td>
<td>Electrical Circuits I</td>
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**Summer Module I (6 credits)**

<table>
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<td>—</td>
<td>Liberal Arts Curriculum Elective</td>
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</tr>
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**Summer Module II (3 credits)**

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<tr>
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<tr>
<td>ARA2-/3-</td>
<td>Arabic Language/Literature</td>
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### Second Year

**Fall Semester (15 credits)**

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<td>HLT201</td>
<td>Basic Health</td>
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<tr>
<td>ENG203</td>
<td>Fundamentals of Oral Communication</td>
<td>3</td>
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<tr>
<td>ELE202</td>
<td>Electrical Circuits II</td>
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<tr>
<td>ELE203</td>
<td>Electrical Circuits II Lab</td>
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<tr>
<td>COE312</td>
<td>Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>COE321</td>
<td>Logic Design</td>
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</tr>
<tr>
<td>COE322</td>
<td>Logic Design Lab</td>
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**Spring Semester (17 credits)**

<table>
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<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>—</td>
<td>Engineering Elective</td>
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</tr>
<tr>
<td>ELE401</td>
<td>Electronics I</td>
<td>3</td>
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<td>ELE402</td>
<td>Electronics I Lab</td>
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<tr>
<td>ELE430</td>
<td>Signals and Systems</td>
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<tr>
<td>COE323</td>
<td>Microprocessors</td>
<td>3</td>
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<tr>
<td>COE324</td>
<td>Microprocessors Lab</td>
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<tr>
<td>—</td>
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**Summer Module I (2 credits)**

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<tbody>
<tr>
<td>GNE301</td>
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**Summer Module II (4 credits)**

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<tr>
<td>PED —</td>
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<tr>
<td>GNE331</td>
<td>Probability and Statistics</td>
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### Third Year

**Fall Semester (16 credits)**

<table>
<thead>
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<tbody>
<tr>
<td>INE320</td>
<td>Engineering Economy I</td>
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</tr>
<tr>
<td>ELE442</td>
<td>Control Systems</td>
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<td>ELE443</td>
<td>Control Systems Lab</td>
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<tr>
<td>ELE537</td>
<td>Communication Systems</td>
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</tr>
<tr>
<td>COE423</td>
<td>Computer Architecture</td>
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<tr>
<td>COE493</td>
<td>Professionalism</td>
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**Spring Semester (18 credits)**

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<tr>
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<tr>
<td>COE424</td>
<td>Digital Systems</td>
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<td>COE425</td>
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<td>—</td>
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<tr>
<td>—</td>
<td>ECE Elective</td>
<td>3</td>
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<tr>
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<td>ECE Track U1</td>
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<tr>
<td>COE492</td>
<td>Fundamentals in ECE</td>
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<td>ELE540</td>
<td>Communications System Lab</td>
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**Summer Module I (6 credits)**

<table>
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<tr>
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<tbody>
<tr>
<td>COE498</td>
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### Fourth Year

**Fall Semester (15 credits)**

<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>COE418</td>
<td>Database Systems</td>
<td>3</td>
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<tr>
<td>COE414</td>
<td>Operating Systems</td>
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<tr>
<td>COE 591</td>
<td>Capstone Design Project</td>
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<tr>
<td>—</td>
<td>ECE Track X2</td>
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<tr>
<td>—</td>
<td>Free Elective</td>
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**Spring Semester (15 credits)**

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<tr>
<th>Course Code</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>COE416</td>
<td>Software Engineering Systems</td>
<td>3</td>
</tr>
<tr>
<td>COE431</td>
<td>Computer Networks</td>
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<tr>
<td>—</td>
<td>Engineering Elective</td>
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</tr>
<tr>
<td>COE592</td>
<td>COE application</td>
<td>3</td>
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<td>—</td>
<td>ECE Track U2</td>
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**Summer Module I (2 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GNE301</td>
<td>Professional Communication</td>
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**Summer Module II (4 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PED —</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>GNE331</td>
<td>Probability and Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Technical Electives: ECE technical electives for both COE and ELE programs are grouped into four different tracks. The four tracks and courses within each track are:

1. **Communication & Networks:**
   - ELE599 Information & Coding Theory
   - ELE599 Optical Fiber Communication
   - ELE538 Noise in Communications
   - ELE539 Telecommunications
   - COE431 Computer Networks (for ELE)
   - COE599 Optical Networks

2. **Computer Hardware & Systems:**
   - COE599 VLSI Design
   - COE599 Embedded Systems
3. Engineering Systems:
- ELE599 Linear Systems
- ELE599 Reliability
- ELE420 Electro-mechanics (for COE)
- ELE 422 Power (for COE)
- ELE 599 Faulted Power Systems

4. Theory & Algorithms:
- COE418 Database Systems (for ELE)
- COE414 Operating Systems (for ELE)
- COE599 Queuing Theory
- ELE599 Information & Coding Theory

Engineering Electives: engineering electives can be any of the following courses:
- Any ECE Technical Elective
- INE307 Deterministic OR models
- INE308 Stochastic OR models
- INE428 Project Management
- INE529 Project Contracting
- INE527 Project Scheduling
- INE320 Engineering Economy
- INE350 Simulation
- INE402 Optimization
- INE440 Advanced Statistics
- INE506 Decision Analysis
- MEE401 Energy systems (2 credits)
- MEE590 Energy Audit (2 credits)
- MEE599 Introduction to Mechatronics
- CIE520 Solid Waste Management
- CIE521 Hydrology
- CIE522 Environmental Impact Assessment
- CIE525 Environmental Policy and Management
- CIE526 Environmental Remediation
- CIE584 Quality Management Systems
- CIE585 Risk and Natural Hazard Management
- CIE723 Water Resources Planning and Management
- CIE733 Groundwater Engineering
- CIE788 GIS and Remote Sensing

1. Except for ELE305, ELE391 and COE312, any COE/ELE course can be considered as a technical elective as long as it is not a required course. COE599/ELE599 could be taken more than once for credit when topics differ.

2. Allowed only for Electrical Engineering students
3. Allowed only for Computer Engineering students

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 a one-language syntax, structured programming, basic constructs (arrays, etc.), object-oriented programming and projects.

Pre-requisite: COE201 Computer Proficiency.

COE212 Engineering Programming [3-0, 3 cr.]
This course covers a high-level programming language syntax, structured programming, basic constructs, arrays, object programming, case studies, and projects tailored towards solving engineering and mathematically-oriented problems.

Concurrent with COE 201 Computer Proficiency (Except for INE and MEE Students)

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.

Pre-requisite: COE212 Engineering Programming.

COE321 Logic Design [3-0, 3 cr.]
This course provides an introduction to digital logic circuits and covers binary number representations, combinational logic design, Boolean algebra, arithmetic circuits, regular logic, programmable logic devices, flip flops, registers, counters, sequential state machines, and asynchronous and synchronous logic.

Pre-requisites: COE201 Computer Proficiency, COE 212 Engineering Programming, MTH 207 Discrete Structures I.

COE322 Logic Design Lab [0-3, 1 cr.]
This laboratory course provides hands-on experience implementing digital logic design systems using modern computer-aided design tools, discrete components, breadboards, and digital probes.

Concurrent with COE321 Logic Design
COE323 Microprocessors [3-0, 3 cr.]
This course covers the internals of the microprocessor and assembly language, storing, manipulating, moving data, basics of control flow, interfacing to other devices, basics of writing good assembly code using the stacks and position independent codes.
Pre-requisite: COE321 Logical Design.

COE324 Microprocessor Lab [0-3, 1 cr.]
This is a lab course with experiments in microprocessors.
Concurrent with COE323 Microprocessors.

COE414 Operating Systems [3-0, 3 cr.]
This course provides an overview of operating systems and provide the basic structure and architecture of some operating systems in the market.
This course covers the process creation, management, synchronization, communications, and scheduling. Memory management and protection.
Pre-requisite: COE 312 Data Structures, COE323 Microprocessors

COE416 Software Engineering [3-0, 3 cr.]
This course covers the analysis, development, design and documentation of software.
Pre-requisite: 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.
Pre-requisite: COE 212 Engineering Programming

COE423 Computer Architecture [3-0, 3 cr.]
This course introduces computer components and systems. Topics include evolution of computer systems, bus interconnections, I/O mechanisms, memory management and hierarchy, instruction set design, and basic pipelined techniques.
Pre-requisites: COE323 Microprocessors.

COE424 Digital Systems [3-0, 3 cr.]
This course is an introduction to digital systems design and covers timing concepts, area-delay tradeoffs, pipelining, and synthesis. Register transfer notation and VHDL are introduced to model, simulate, and verify designs. Topics include field-programmable gate arrays, technology mapping, layout synthesis, and routing.
Pre-requisite: COE323 Microprocessors.

COE425 Digital Systems Lab [0-3, 1 cr.]
This laboratory course provides hands-on experience implementing complex digital systems using modern computer-aided design tools, FPGA-based boards, and various I/O devices.
Concurrent with COE424 Digital Systems

COE431 Computer Networks* [3-0, 3 cr.]
This course covers the topologies, installation and configuration, testing, modeling and simulation of networks. In addition to: protocols, standards, TCP/IP, and socket programming.
Fourth year standing required

COE 492 FUNDAMENTALS IN ECE [0-3, 1 cr.]
This course consolidates the concepts covered in the first two years of the program in mathematics, computers, and engineering with emphasis on their practical applications in ECE. It also provides an accurate and comprehensive assessment for these concepts by exposing the students to professional engineering and FE-style examinations.
Pre-requisite: GNE 331 Probability & Statistics, ELE 430 Signals & Systems, ELE 401 Electronics I, COE 323 Microprocessors

COE 493 PROFESSIONALISM IN ENGINEERING [3-0, 3 cr.]
Overview of the nature and scope of engineering profession. Working on a multidisciplinary team environment; professional and ethical responsibility; the impact of engineering solutions in a global and societal context; contemporary issues; and life-long learning.
Pre-requisite: Third year standing required.

COE498 Professional Experience [0-6, 6 cr.]
This course entails professional experience through training in the execution of real-life engineering projects.
Pre-requisite: Fifth year standing and the consent of the instructor.

COE533 Advanced Computer Networks [3-0, 3 cr.]
This course covers advanced networks, remote procedure calls (RPC’s), layering and ISO.
Pre-requisite: COE431 Computer Networks.
MISSION
The mission of the Electrical Engineering Program is to educate each student to become a responsible and productive electrical engineer capable of effectively managing future challenges.

PROGRAM EDUCATIONAL OBJECTIVES
Within a few years of graduation, the graduates of the Electrical Engineering program will:

1. Demonstrate technical aptitude in Electrical Engineering careers and/or graduate studies
2. Establish themselves in diverse fields of Electrical Engineering
3. Conduct themselves as effective professionals

PROGRAM OUTCOMES
The students will acquire in their matriculation through the program, the following skills, knowledge, and behaviors:

a. An ability to apply knowledge of mathematics, science, and engineering.
b. An ability to design and conduct experiments, as well as to analyze and interpret data.
c. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
d. An ability to function on multidisciplinary teams.
e. An ability to identify, to formulate, and to solve engineering problems.
f. An understanding of one’s professional and ethical responsibility.
g. An 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. A recognition of the need and the ability to engage in lifelong learning.
j. A knowledge of contemporary issues.
k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
MAJOR REQUIREMENTS

First Year

Fall Semester (17 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>PHY201</td>
<td>Electricity and Magnetism</td>
<td>4</td>
</tr>
<tr>
<td>MTH201</td>
<td>Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>GNE212</td>
<td>Engineering Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>COE201</td>
<td>Computer Proficiency</td>
<td>1</td>
</tr>
<tr>
<td>COE212</td>
<td>Engineering Programming</td>
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Spring Semester (16 credits)

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<tbody>
<tr>
<td>MTH207</td>
<td>Discrete Structures</td>
<td>3</td>
</tr>
<tr>
<td>ETH201</td>
<td>Liberal Arts Curriculum Elective</td>
<td>3</td>
</tr>
<tr>
<td>MTH304</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MTH206</td>
<td>Calculus IV</td>
<td>3</td>
</tr>
<tr>
<td>ELE201</td>
<td>Electrical Circuits I</td>
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Summer Module I (6 credits)

<table>
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<tr>
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<tbody>
<tr>
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<td>Liberal Arts Curriculum Elective</td>
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Summer Module II (3 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ARA2—/3—</td>
<td>Arabic Language/Literature</td>
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Second Year

Fall Semester (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ENG203</td>
<td>Fund. of Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>COE321</td>
<td>Logic Design</td>
<td>3</td>
</tr>
<tr>
<td>COE322</td>
<td>Logic Design Lab</td>
<td>1</td>
</tr>
<tr>
<td>ELE391</td>
<td>Mathematical Methods in Elec. Eng.</td>
<td>3</td>
</tr>
<tr>
<td>ELE302</td>
<td>Electrical Circuits II</td>
<td>3</td>
</tr>
<tr>
<td>ELE303</td>
<td>Electrical Circuits II Lab</td>
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<tr>
<td>HLT201</td>
<td>Basic Health</td>
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Spring Semester (17 credits)

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<tbody>
<tr>
<td>ELE401</td>
<td>Electronics I</td>
<td>3</td>
</tr>
<tr>
<td>COE323</td>
<td>Electronics Lab</td>
<td>1</td>
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<tr>
<td>COE323</td>
<td>Microprocessors</td>
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<tr>
<td>COE324</td>
<td>Microprocessors Lab</td>
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<tr>
<td>ELE411</td>
<td>Electromagnetic Fields</td>
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</tr>
<tr>
<td>ELE430</td>
<td>Signals and Systems</td>
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Summer Module I (2 credits)

<table>
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<tbody>
<tr>
<td>GNE301</td>
<td>Professional Communication</td>
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Summer Module II (4 credits)

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<tr>
<td>PED —</td>
<td>Physical Education</td>
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<tr>
<td>GNE331</td>
<td>Probability and Statistics</td>
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Third Year

Fall Semester (18 credits)

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<tr>
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</thead>
<tbody>
<tr>
<td>ELE493</td>
<td>Professionalism</td>
<td>3</td>
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</table>

Technical Electives: ECE technical electives for both COE and ELE programs are grouped into four different tracks. The four tracks and courses within each track are:

1. Communication & Networks:
   - ELE599 Information & Coding Theory
   - ELE599 Optical Fiber Communication
   - ELE538 Noise in Communications
   - ELE539 Telecommunications
   - COE431 Computer Networks (for ELE)
   - COE599 Optical Networks

2. Computer Hardware & Systems:
   - COE599 VLSI Design
   - COE599 Embedded Systems
   - COE599 High-Perf. Computer Architecture
   - COE423 Computer Architecture (for ELE)
3. Engineering Systems:
  - ELE599 Linear Systems
  - ELE599 Reliability
  - ELE420 Electro-mechanics (for COE)
  - ELE 422 Power (for COE)
  - ELE 599 Faulted Power Systems

4. Theory & Algorithms:
  - COE418 Database Systems (for ELE)
  - COE414 Operating Systems (for ELE)
  - COE599 Queuing Theory
  - ELE599 Information & Coding Theory

Engineering Electives: engineering electives can be any of the following courses:
  - Any ECE Technical Elective
  - INE307 Deterministic OR models
  - INE308 Stochastic OR models
  - INE428 Project Management
  - INE529 Project Contracting
  - INE527 Project Scheduling
  - INE320 Engineering Economy
  - INE350 Simulation
  - INE402 Optimization
  - INE440 Advanced Statistics
  - INE506 Decision Analysis
  - MEE401 Energy systems (2 credits)
  - MEE590 Energy Audit (2 credits)
  - MEE599 Introduction to Mechatronics
  - CIE520 Solid Waste Management
  - CIE521 Hydrology
  - CIE522 Environmental Impact Assessment
  - CIE525 Environmental Policy and Management
  - CIE526 Environmental Remediation
  - CIE584 Quality Management Systems
  - CIE585 Risk and Natural Hazard Management
  - CIE723 Water Resources Planning and Management
  - CIE733 Groundwater Engineering
  - CIE788 GIS and Remote Sensing

1. Except for ELE305, ELE391 and COE312, any COE/ELE course can be considered as a technical elective as long as it is not a required course. COE599/ELE599 could be taken more than once for credit when topics differ.

2. Allowed only for Electrical Engineering students

COURSE DESCRIPTIONS

ELE201 Electrical Circuits I [3-0, 3 cr.]
This course covers the resistors, capacitors and inductors, 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).
Pre-requisite: PHY201 Electricity and Magnetism.

ELE302 Electrical Circuits II [3-0, 3 cr.]
This course covers 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-ports networks; computer-aided circuit simulation (SPICE).
Pre-requisites: ELE201 Electrical Circuits I and 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 introduces the concepts of resistors, capacitors and inductors, voltage and current sources, operational amplifiers, voltage and current laws, node and mesh analysis, network theorems, power and energy, three-phase circuits, logic circuits, and binary representations.

ELE 391 MATHEMATICAL METHODS IN ELECTRICAL ENGINEERING [3-0 3cr.]
This course introduces foundation knowledge of complex variables and linear algebra with applications to electrical engineering. Topics covered are vector spaces, subspaces, linear dependence/independence, basis; linear transformations and eigenstructure analysis; matrix representations of linear electrical systems; analytic functions of complex variables and contour integrals; Cauchy integral formula.
Pre-requisite: MTH 304 Differential Equations.

**ELE401 Electronics I [3-0, 3 cr.]**
This course covers Microelectronics devices and their applications using latest semiconductors technologies. These devices range from Normal Diodes, ZENER iDodes, LEDs, Photodiodes, BJTs, to MOSFETS. Their applications include the design of regulators, rectifiers, clamps, operational amplifiers and digital integrated circuitry.

Pre-requisite: GNE 331 Probability and Statistics, ELE302 Electrical Circuits II

**ELE402 Electronics I Lab [0-3, 1 cr.]**
The laboratory experiments are hands-on implementation of the devices and circuitry presented in the course as well as circuit simulation using the SPICE software.

Concurrent with ELE401 Electronics I

**ELE411 Electromagnetic Fields [3-0, 3 cr.]**
Fundamental concepts of the electromagnetic model, vector analysis, static electric fields, static magnetic fields, steady electric currents, Maxwell’s equations, Coulomb’s law, Gauss’s law, Biot-Savart law, Faraday’s law, Poisson’s and Laplace’s equations, Joule’s law, capacitance calculations, inductance calculations, resistance calculations.

Pre-requisite: ELE 201 Electrical Circuits I, ELE 391 Mathematical Methods in Electrical Engineering, COE 321 Logic Design

**ELE413 Electromagnetic Waves [3-0, 3 cr.]**
Fundamental concepts of electromagnetic waves, Maxwell’s equations, propagation of plane electromagnetic waves, theory and application of transmission lines, waveguides, antennas.

Pre-requisites: ELE302 Electrical Circuits II and ELE411 Electromagnetic Fields.

**ELE420 Electromechanics [3-0, 3 cr.]**
This course covers three-phase circuit concepts; magnetic circuits; energy storage and conversion; force and emf production; forces and torques of electric origin in electromagnetic systems; power transformers and autotransformers; principles of electric ac machines; synchronous generators; three-phase and single-phase induction motors.

Pre-requisites: ELE411 Electromagnetic Fields.

**ELE422 Power Systems [3-0, 3 cr.]**
This course provides students with a working knowledge of power system problems and computer techniques to solve some of these problems. Topics include: review of three-phase analysis, complex power, per-unit system, synchronous machines, transformers, autotransformers, and regulating transformers; calculation of transmission line parameters, evaluation of steady state operation of transmission lines; reactive power compensation; line capability; power flow analysis using Gauss-Seidel and Newton-Raphson methods.

Pre-requisite: ELE420 Electromechanics

**ELE423 Power Systems Lab [0-3, 1 cr.]**
This course covers the following experiments to study various aspects of electric machines and power systems: fundamentals of electrical power technology; alternating currents; power and impedance in ac circuits; three-phase circuits; single-phase and three-phase transformers; fundamentals of rotating machines; dc motors and generators; ac induction motors; three-phase synchronous generators and motors.

Concurrent with ELE422 Power Systems

**ELE430 Signals and Systems [3-0, 3 cr.]**
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; z-transform; analysis and design of digital filters; DFT and FFT.

Pre-requisite: 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).

Pre-requisite: 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.

**ELE 492 FUNDAMENTALS IN ECE [0-3, 1 cr.]**
This course consolidates the concepts
covered in the first two years of the program in mathematics, computers, and engineering with emphasis on their practical applications in ECE. It also provides an accurate and comprehensive assessment for these concepts by exposing the students to professional engineering and FE-style examinations.

Pre-requisite: ELE 430 Signals and Systems, GNE 331 Probability and Statistics, COE 323 Microprocessors

ELE 493 PROFESSIONALISM IN ENGINEERING [3-0, 3 credits]
Overview of the nature and scope of engineering profession. Working on a multidisciplinary team environment; professional and ethical responsibility; the impact of engineering solutions in a global and societal context; contemporary issues; and life-long learning.

Pre-requisite: Third year standing required.

ELE498 Professional Experience [0-6, 6 cr.]
This course entails a professional experience through training in the execution of real life engineering projects.

Pre-requisite: Fifth-year standing and the consent of the instructor.

ELE525 Faulted Power System* [3-0, 3 cr.]
This course provides students with advanced knowledge of power system evaluation techniques. Topics include: economic load dispatch with generation limits and line losses; impedance model; three-phase symmetrical faults; symmetrical components; and unsymmetrical faults analysis.

Pre-requisite: ELE422 Power Systems.

ELE528 Electrification of Plants [3-0, 3 cr.]
Electrical Design, software and calculation notes complete including Lighting, Power and Low current systems design.

Pre-requisite: ELE422 Power Systems.

ELE537 Communication Systems [3-0, 3 cr.]
Basic principles of point-to-point communication link design and analysis, introduction to the theory and principles of modern communication systems, overview of the currently used analog and digital communication techniques and their relative advantages and disadvantages, analog modulation and demodulation, component parts used in analog and digital transceivers.

Pre-requisite: ELE430 Signals and Systems, GNE 331 Probability and Statistics.

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.

Pre-requisite: 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.

Pre-requisite: 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.

ELE591 Capstone Design Project I [3-0, 3 cr.]
The course is devoted to the solution of open-ended engineering design projects with functional specifications and realistic constraints. This project provides a culminating major design experience that is concluded by a written report and an oral presentation.

Course Pre-requisites: Fifth year standing.

ELE592 Project II [3-0, 3 cr.]
This course is an advanced engineering project using acquired technical knowledge, formal report, and presentation.

Pre-requisites: Fifth 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.

Pre-requisites: Final-year standing and the consent of the instructor.
Graduate Program

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:

1. Aid students in creatively using their background in basic sciences and mathematics, as well as their expertise in certain areas of computer engineering.
2. 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.
3. Provide a creative, critical and model-based thinking and problem-solving approach.
4. Offer students the opportunity to do research on important scientific and technical problems, to disseminate knowledge, and to publish research findings.

STUDENT 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 (COE) 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 Academic Rules and Regulations for Graduate Programs.

The GRE general exam is required of all applicants (GRE subject exams are not required). All applicants must submit scores for the GRE general exam (includes verbal reasoning, quantitative reasoning, and analytical writing scores). Your GRE test scores are an important part of your application. GRE test scores that are more than 5 years old will not be accepted.
The admissions committee considers several factors when making admission decisions: your academic performance at prior institutions (grades, rankings, and GPAs) and your GRE test score. The rate of graduate assistantship (GA), when requested, is directly related to your GPA and GRE scores. Letters of recommendation are optional; however, three letters are recommended, two of which to be completed by faculty who are familiar with your academic performance.

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.

In order to satisfy the requirements for the MSE in Computer Engineering with emphasis on:

Computer Engineering, the student is required to complete at least

- Four courses from Hardware & Systems,
- One course from Software and Theory, and
- One course from either Communication Systems or Systems Engineering.

Computer and Communications Engineering, the student is required to complete at least

- Two courses from Hardware & Systems,
- One course from Software & Theory
- Two courses from Communication Systems, and
- One course from Systems Engineering

The remaining courses may be chosen, without restriction, from any of the four concentration areas, and counted toward 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:

Other topic courses might be offered in these areas:

Hardware & Systems

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>COE725</td>
<td>VLSI Design</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>
</tr>
<tr>
<td>COE761</td>
<td>Embedded Systems</td>
<td>3</td>
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Systems

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<tr>
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<th>Title</th>
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<tbody>
<tr>
<td>COE533</td>
<td>Advanced Computer Networks</td>
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</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>COE723</td>
<td>High Performance Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>COE732</td>
<td>Networks Security</td>
<td>3</td>
</tr>
<tr>
<td>COE733</td>
<td>Optical Networks</td>
<td>3</td>
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Software & Theory

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<tr>
<th>Course</th>
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<tr>
<td>COE714</td>
<td>Advanced Software Engineering</td>
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<tr>
<td>COE715</td>
<td>Object-Oriented Software Engineering</td>
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</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>
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Theory and Algorithms

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<tr>
<td>COE742</td>
<td>Neural Networks</td>
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<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>
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<tr>
<td>COE755</td>
<td>Queuing Theory</td>
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Communication Systems

<table>
<thead>
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<tbody>
<tr>
<td>ELE731</td>
<td>Optical Fiber Communications</td>
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<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>
</tr>
<tr>
<td>ELE735</td>
<td>Information and Coding Theory</td>
<td>3</td>
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</tbody>
</table>

Students with a Bachelor of Engineering Degree, and who are pursuing a Master of Science Degree, may transfer the following...
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 invocation, distributed file systems, file service architecture, name services, directory and discovery services, distributed synchronization and coordination, and distributed multimedia systems.

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.

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.

Pre-requisite: 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.

Pre-requisite: 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.

Pre-requisite: CSC312 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.

Pre-requisites: 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.

Pre-requisite: 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.

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.

Pre-requisite: 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.

Pre-requisite: COE321 Logical 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 self-test, delay testing, current testing, ATPG-based logic synthesis, system test, and core-based design, and testing a system-on-a-chip (SOC).

Pre-requisite: 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 network, 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.

Pre-requisite: COE431 Computer Networks.

COE 733 Optical Networks [3-0, 3 cr.]
This course covers the fundamentals of optical networking. In particular, it touches on the following topics: the building blocks of optical wavelength division multiplexed networks, wavelength division multiplexing (WDM) and its enabling technologies, WDM-based access and metro optical network architectures, wavelength-routed optical wavelength division multiplexed networks used for wide area coverage, optical burst switched networks, and optical packet switched networks.

Pre-requisite: Consent of instructor.

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.

Pre-requisite: 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.

Pre-requisite: 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.

Pre-requisite: The consent of the instructor.
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.

Pre-requisites: 15 graduate credits, and the consent of the instructor.

COE899 Thesis [6-0, 6 cr.]
This is a master’s thesis research course under the direction of a faculty member.

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.

Pre-requisite: ELE442 Control Systems.

ELE 724 Faulted Power System [3-0, 3 cr.]
This course covers the techniques and mathematical tools needed to analyze faulted power systems. Topics include impedance model, analysis of three-phase symmetrical faults, symmetrical components, unsymmetrical faults, and power systems stability. Students will be challenged to draw upon a background of knowledge from earlier studies to explore these topics in a comprehensive manner. Pre-requisite: ELE 422 Power Systems and Consent of instructor.

ELE 724 Faulted Power System [3-0, 3 cr.]
This course covers the techniques and mathematical tools needed to analyze faulted power systems. Topics include impedance model, analysis of three-phase symmetrical faults, symmetrical components, unsymmetrical faults, and power systems stability. Students will be challenged to draw upon a background of knowledge from earlier studies to explore these topics in a comprehensive manner. Pre-requisite: ELE 422 Power Systems and Consent of instructor.

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.

Pre-requisite: 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.

Pre-requisite: ELE537 Communication Systems.

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.


ELE 734: Optical Fiber Communications [3-0, 3 cr.]
Basic principles of point-to-point optical fiber communications, waveguiding and signal degradation in optical fibers, optical sources, photodetectors, WDM components, dimensioning of fiber links for analog and digital transmissions, performance of digital optical communication systems in the presence of noise. Pre-requisite: Consent of instructor.

ELE 735: Information and Coding Theory [3-0, 3 cr.]
Information theory applied to communication systems. It covers digital signals and streams, information measures, data compression, error-correcting codes, block codes, convolutional codes, Viterbi algorithm, noise, maximum-entropy, Markov chains, channel capacity formalism and Shannon’s theorem.

Pre-requisite: Consent of instructor.

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.

Pre-requisite: ELE442 Control 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.

Pre-requisite: GNE331 Probability and Statistics.

Special topics [3-0, 3 cr.]
This course covers topics of current interest selected by the faculty.

Pre-requisite: The consent of the instructor.
Department Of Industrial & Mechanical Engineering

The Department of Industrial and 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

With a minor in Packaging

GRADUATE PROGRAM

Master of Science (M.S.) in Industrial Engineering and Engineering Management.

Undergraduate Programs

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, are resulting in a greater demand for engineering graduates with a broad interdisciplinary 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 150 semester hours. 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 Industrial Engineering Program strives to support the mission of the school by providing students with a solid and contemporary industrial engineering curriculum and a broad education that prepares them for successful careers as industrial engineers in a globalized world as well as graduate studies.

PROGRAM EDUCATIONAL OBJECTIVES

Within a few years of graduation, the graduates of the industrial engineering program will:

1. Lead successful careers in a wide range of Industrial Engineering areas or succeed in graduate studies.
2. Be agents of change in dynamic environments.
3. Establish themselves as responsible professionals and work successfully as members of a multi-disciplinary team.

PROGRAM OUTCOMES

The students will acquire in their matriculation through the program, the following skills, knowledge, and behaviors:

a. An ability to apply knowledge of mathematics, science and engineering.
b. An ability to design and conduct experiments, as well as to analyze and interpret data.
c. An ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
d. An ability to function on multidisciplinary teams.
e. An ability to identify, formulate and solve engineering problems.
f. An understanding of one’s professional and ethical responsibility.
g. An 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. A recognition of the need and the ability to engage in lifelong learning.
j. A Knowledge of contemporary issues.
k. An Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
## MAJOR REQUIREMENTS

### First Year

#### Fall Semester (16 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COE 212</td>
<td>Engineering Programming</td>
<td>3</td>
</tr>
<tr>
<td>ENG 202</td>
<td>Sophomore Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>GNE 212</td>
<td>Engineering Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>MEE 211</td>
<td>Engineering Graphics</td>
<td>1</td>
</tr>
<tr>
<td>MTH 201</td>
<td>Calculus III</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Liberal Arts Curriculum Elective</td>
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#### Spring Semester (16 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ARA 201</td>
<td>Appreciation of Arabic Lit.</td>
<td>3</td>
</tr>
<tr>
<td>ELE 305</td>
<td>Introduction to Electrical Eng.</td>
<td>3</td>
</tr>
<tr>
<td>ETH 201</td>
<td>Moral Reasoning</td>
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<tr>
<td>MTH 304</td>
<td>Differential Equations</td>
<td>3</td>
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<tr>
<td>MTH 206</td>
<td>Calculus IV</td>
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#### Summer Module I (6 credits)

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>GNE 333</td>
<td>Engineering Analysis I</td>
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#### Summer Module II (4 credits)

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<tbody>
<tr>
<td>GNE 331</td>
<td>Probability and Statistics</td>
<td>3</td>
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<tr>
<td>PED 2-</td>
<td>Physical Education</td>
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### Second Year

#### Fall Semester (15 credits)

<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>INE 307</td>
<td>Intro. To Deterministic OR Models</td>
<td>3</td>
</tr>
<tr>
<td>INE 350</td>
<td>Simulation</td>
<td>3</td>
</tr>
<tr>
<td>INE 351</td>
<td>Simulation Laboratory</td>
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<tr>
<td>MEE 212</td>
<td>Computer Applications in IME</td>
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<tr>
<td>MEE 321</td>
<td>Material Properties &amp; Processes</td>
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#### Spring Semester (16 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>INE 308</td>
<td>Intro. To Stochastic OR models</td>
<td>3</td>
</tr>
<tr>
<td>INE 320</td>
<td>Engineering Economy I</td>
<td>3</td>
</tr>
<tr>
<td>INE 346</td>
<td>Production Systems I</td>
<td>3</td>
</tr>
<tr>
<td>INE 362</td>
<td>Production Processes &amp; Mach.</td>
<td>3</td>
</tr>
<tr>
<td>INE 363</td>
<td>Production Processes Lab.</td>
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#### Summer Module I (5 credits)

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<tbody>
<tr>
<td>ENG 203</td>
<td>Fundamentals of Oral Communication</td>
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<tr>
<td>GNE 301</td>
<td>Professional Communication</td>
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#### Summer Module II (4 credits)

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<tr>
<td></td>
<td>Liberal Arts Curriculum Elective</td>
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<tr>
<td>HLT 201</td>
<td>Basic Health</td>
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### Third Year

#### Fall Semester (15 credits)

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>GNE 305</td>
<td>Professional Ethics</td>
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<tr>
<td>INE 416</td>
<td>Ergonomics</td>
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<tr>
<td>INE 417</td>
<td>Ergonomics Lab</td>
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<tr>
<td>INE 442</td>
<td>Quality Control</td>
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<tr>
<td>INE 446</td>
<td>Production Systems II</td>
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<td>Engineering Elective (3/3)</td>
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#### Spring Semester (17 credits)

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>INE 428</td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>INE 438</td>
<td>Facilities Planning and Logistics</td>
<td>3</td>
</tr>
<tr>
<td>INE xxx</td>
<td>Technical Elective (1/10) [Area 1]</td>
<td>3</td>
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<tr>
<td>INE xxx</td>
<td>Technical Elective (2/10) [Area 2]</td>
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<tr>
<td>INE xxx</td>
<td>Technical Elective (3/10) [Area 3]</td>
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#### Summer Module I (6 credits)

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<tr>
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<tbody>
<tr>
<td>COE 498</td>
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### Fourth Year

#### Fall Semester (16 credits)

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<tr>
<td>INE 591</td>
<td>Project 1</td>
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<tr>
<td>INE 593</td>
<td>Capstone Engineering Design</td>
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<tr>
<td>INE 440</td>
<td>Advanced Statistics</td>
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<tr>
<td>INE xxx</td>
<td>Technical Elective (4/10) [Area 4]</td>
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<tr>
<td>INE xxx</td>
<td>Technical Elective (5/10) [Free]</td>
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<tr>
<td>INE xxx</td>
<td>Technical Elective (6/10) [Free]</td>
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#### Spring Semester (14 credits)

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<tbody>
<tr>
<td>INE 491</td>
<td>Seminar on Contemporary Issues</td>
<td>2</td>
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<tr>
<td>INE xxx</td>
<td>Technical Elective (7/10) [Free]</td>
<td>3</td>
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<tr>
<td>INE xxx</td>
<td>Technical Elective (8/10) [Free]</td>
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<tr>
<td>INE xxx</td>
<td>Technical Elective (9/10) [Free]</td>
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</tr>
<tr>
<td>INE xxx</td>
<td>Technical Elective (10/10) [Free]</td>
<td>3</td>
</tr>
</tbody>
</table>

### Engineering Elective Courses

The following table clarifies the “INE Engineering Elective” requirement:

- The first column lists the approved courses’ Subjects
- The second column lists the excluded courses that DO NOT count as INE Engineering elective towards graduation.
Category Exclusions from category courses with MEE prefix
MEE220, MEE241, MEE498, MEE591, MEE592, MEE599 and all Lab courses (1-credit courses).
Lab Courses are: MEE305, MEE312, MEE333, MEE406, MEE408, MEE433, MEE443, MEE404, MEE516.

courses with COE prefix
COE201, COE211, COE498, COE591, COE592, and all Lab courses (1-credit courses).
Lab Courses are: COE303, COE322, COE324, COE411, COE425, COE516.

courses with ELE prefix
ELE201, ELE498, ELE592, ELE599, and all Lab courses (1-credit courses).
Lab Courses are: ELE303, ELE402, ELE403, ELE416, ELE423, ELE443, ELE523, ELE540, ELE546.

courses with CIE prefix
CIE200, CIE360, CIE498, CIE580, CIE584, CIE585, CIE600, CIE601, CIE602, and all Lab and SOFT Courses.

Courses with ACC, FIN, ECO, MIS prefixes
ACC430, ACC499, ACC521, FIN401, FIN499, EC03330, EC03331, EC0402, EC0410, EC0499, EC0511, MIS350, MIS488, MIS499.

Courses with CSC, and MTH prefix
CSC201, CSC241, CSC242, CSC243, CSC398, CSC480, CSC490, CSC498, CSC599, MTH101, MTH102, MTH111, MTH200, MTH201, MTH206, MTH301, MTH304, MTH320 to MTH406, MTH497, MTH498, MTH499, MTH521, MTH401, MTH402, MTH406.

Technical Elective Courses by Concentration Areas

1. Optimization
- INE407 [3-0, 3 cr.] Network Flow
- INE501 [3-0, 3 cr.] Linear Programming
- INE502 [3-0, 3 cr.] Integer Programming
- INE503 [3-0, 3 cr.] Nonlinear Optimization
- INE504 [3-0, 3 cr.] Stochastic Processes
- INE505 [3-0, 3 cr.] Dynamic Programming
- INE507 [3-0, 3 cr.] Advanced Stochastic Processes
- INE551 [3-0, 3 cr.] Advanced Simulation

2. Production Systems
- INE436 [3-0, 3 cr.] Materials Handling
- INE541 [3-0, 3 cr.] Quality Management Systems
- INE542 [3-0, 3 cr.] Advanced Stochastic Processes
- INE544 [3-0, 3 cr.] Inventory Analysis
- INE548 [3-0, 3 cr.] Machine Scheduling

3. Manufacturing
- INE563 [3-0, 3 cr.] CAD/CAM
- INE564 [3-0, 3 cr.] Reliability Evaluation of Engineering Systems
- INE565 [3-0, 3 cr.] Analysis of Automated Manufacturing Systems
- INE566 [3-0, 3 cr.] Advanced Information Technology for Industrial & Manufacturing Engineering
- INE567 [3-0, 3 cr.] Time Series Control & Process Adjustment

4. Industrial Management & Economics
- INE506 [3-0, 3 cr.] Decision Analysis
- INE521 [3-0, 3 cr.] Engineering Economy II
- INE522 [3-0, 3 cr.] Cost Engineering and Control
- INE523 [3-0, 3 cr.] Financial Engineering
- INE524 [3-0, 3 cr.] Advanced Financial Engineering
- INE527 [3-0, 3 cr.] Project Scheduling
- INE529 [3-0, 3 cr.] Project Contracting

Special Topics
- INE599 [1-3, 3 cr.] Topics in Industrial Engineering
COURSE DESCRIPTIONS

INE302 Linear Programming [3-0, 3 cr.]
This course covers the formulation of linear programming problems, simplex method, duality, and sensitivity analysis.
Pre-requisite: GNE333 Engineering Analysis I.

INE307 Deterministic OR models [3-0, 3 cr.]
Introduction to deterministic OR modeling. Optimization modeling: decision variables, objective functions, and constraints. Models include linear programs, integer programs, transportation and assignment problems, simple network problems. Methods include simplex method, transportation simplex, shortest path, minimum cost flow, and maximum flow problems.
Pre-requisites: GNE333 Engineering Analysis I, COE 212 Engineering Programming.

INE308 Stochastic OR models [3-0, 3 cr.]
Introduction to discrete Markov chains and continuous Markov Processes, including transient and limiting behavior. The Poisson/Exponential process. Conditional probabilities and conditional expectations. Applications to reliability, maintenance, inventory, production, simple queues and other engineering problems. Introduction to decision theory, risk, utility and decision trees.
Pre-requisites: GNE331 Probability and Statistics, INE 307 Deterministic OR models.

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.
Pre-requisite: Third year standing.

INE345 Production Control [4-0, 4 cr.]
This course covers forecasting, capacity planning, aggregate planning, line balancing, and financial analysis.
Pre-requisite: INE302 Linear Programming, COE221 Computer Programming, and GNE331 Probability and Statistics.

INE346 Production Systems I [3-0, 3 cr.]
Course is an introduction to subjects that span the industrial engineering curriculum and that are covered in greater detail in more advanced courses. Subjects covered are Forecasting, EOQ, safety stock, Process design, Aggregate Planning, facilities planning and logistics, quality control, human factors, ergonomics and work design, principles of Industrial Management and Project management.
Pre-requisites: GNE331 Probability and Statistics, INE 307 Deterministic OR models.

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.

INE351 Simulation Lab [0-2, 1 cr.]
Lab course complements the course INE350 simulation. This lab provides students with hands-on experience in the use of state of the art simulation tools and programs such as ARENA.
Pre-requisites: INE 350 Simulation.

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.
Pre-requisite: 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.
Pre-requisite: GNE333 Engineering Analysis I.
INE407 Network Flow [3-0, 3 cr.]
This course covers networks, shortest/longest path, decision trees, and network flow.
Pre-requisite: INE307 Deterministic OR models or Consent of instructor.

INE410 Work Design and Measurement [3-0, 3 cr.]
This course covers methods engineering, operation analysis, worker and machine relationships, productivity measures, time study, time standards, allowances, work sampling, predetermined time systems, learning curves, wage payment, safety and risk factor identification.
Pre-requisites: Fourth year standing

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.
Pre-requisite: 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.
Pre-requisites: INE410 Motion and Time Study, and INE414 Human Factors in Engineering.

INE416 Ergonomics [4-0, 4 cr.]
Course covers the biomechanics of the musculoskeletal system; anthropometry; manual work design; lifting; motion study; workstation, tools, and tasks design; displays & controls design; machine user interfaces; environmental stress assessment (noise, heat, illumination); toxicology; cognitive work design; operations analysis; worker and machine relationships; productivity measures; time standards; allowances; work sampling; predetermined time systems; learning curves; wage payment; safety and risk factor identification; worker motivation; job evaluation; job compensation.
Pre-requisites: Fourth year standing.

INE417 Ergonomics Lab [0 -3, 1 cr.]
Course provides students with hands-on experience in the use of the state of the art ergonomics equipment and software for virtual human modeling such as DELMIA.
Pre-requisites: INE416 Ergonomics.

INE428 Project Management [3-0, 3 cr.]
Course covers topics on organization structures, project manager-line manager interface, manager’s role as planning agent, skill requirements for project manager, management functions, team building as an ongoing process, concurrent engineering as a PM approach, TQM as a PM approach, effective team communication and communication traps, project communication, effective time management, managing conflicts and conflict resolution, ethics obligation matrix and ethics for project managers, project planning, project time management, activity planning, CPM scheduling, and resource allocation. Course includes a team project to plan and schedule the implementation of a selected project.
Pre-requisites: GNE305 Professional Ethics.

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.
Pre-requisites: INE416 Ergonomics.

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.
Pre-requisites: INE446 Production Systems II or Consent of instructor.

INE438 Facilities Planning & Logistics [3-0, 3 cr.]
Course covers topics in flow measurements and analysis, flow planning, activity planning and relationships, layout planning, single facility location models minimax and minimum facility location, multiple facility location, process capacity analysis, materials handling capacity analysis, facilities planning in the context of supply chain design and supply chain excellence.
Pre-requisites: INE446 Production Systems II.
INE440 Advanced Statistics [3-0, 3 cr.]
This course covers single factor experiments, randomized blocks, Latin squares, introduction to factorial designs, $2^k$ factorial blocking and confounding, and forecasting.
Pre-requisite: GNE331 Probability and Statistics.

INE442 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.
Pre-requisites: INE 346 Production Systems I.

NE443 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.
Pre-requisites: INE440 Advanced Statistics and INE442 Quality Control I.

INE446 Production Systems II [3-0, 3 cr.]
Course covers topics on Inventory analysis, Forecasting, Machine Scheduling, sequencing, cycle time, material control, Manufacturing systems, e.g., cellular, group technology, flexible, lean, JIT, MRP, and ERP. Concurrent engineering and design for manufacturing.
Pre-requisites: INE 346 Production Systems I.

INE491 Seminar on Contemporary issues in INE [2-0, 2 cr.]
This is a seminar course covering contemporary issues in Industrial Engineering. Students are asked to research contemporary subjects in the field and present findings to the class.
Pre-requisites: Fourth year standing.

INE498 Professional Experience [0-6, 6 cr.]
This course covers professional experience, through training in the execution of real-life engineering projects.
Pre-requisites: Fifth-year standing and the consent of the instructor.

INE501 Linear Programming [3-0, 3 cr.]
Formulation of linear programming problems; Simplex method; Duality and sensitivity analysis.
Pre-requisite: GNE333 Engineering Analysis I and consent of instructor.

INE502 Integer Programming [3-0, 3 cr.]
This course covers integer programming and general search techniques.
Pre-requisites: INE307 Deterministic OR models or Consent of instructor.

INE503 Nonlinear Optimization [3-0, 3 cr.]
This course covers nonlinear/continuous optimization methods.
Pre-requisites: INE307 Deterministic OR models or Consent of instructor.

INE504 Stochastic Processes [3-0, 3 cr.]
Introduction to non-measure theoretic stochastic processes. Poisson processes, renewal processes, and discrete time Markov chains. Applications in queuing systems, reliability, stochastic scheduling, and inventory control.
Pre-requisites: GNE331 Probability and Statistics and consent of instructor.

INE505 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.
Pre-requisites: INE307 Deterministic OR models, and consent of instructor.

INE506 Decision Analysis [3-0, 3 cr.]
This course covers decision analysis, game theory, Bayesian decision theory, and the utility theory.
Pre-requisite: GNE331 Probability and Statistics, and consent of instructor.
INE507 Advanced Stochastic Processes [3-0, 3 cr.]
Pre-requisites: INE 504 Stochastic processes and consent of instructor.

INE521 Engineering Economy II [3-0, 3 cr.]
This course deals with the uncertainty, breakeven analysis, sensitivity analysis, probabilistic risk analysis, and accounting principles.
Pre-requisites: INE320 Engineering Economy I.

INE522 Cost Engineering and Control [3-0, 3 cr.]
Pre-requisites: consent of instructor.

INE523 Financial Engineering [3-0, 3 cr.]
Pre-requisites: INE504 Stochastic Processes and consent of instructor.

INE524 Advanced Financial Engineering [3-0, 3 cr.]
Pre-requisites: INE507 Advanced Stochastic Processes and INE 523 Financial Engineering

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 levelling, and least cost scheduling, including time-cost trade-off analysis, and schedule control.
Pre-requisites: consent of instructor or 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, (4) Proposal preparation, and students use of contract documents to prepare detailed estimates.
Pre-requisites: consent of instructor or Fourth-year standing.

INE541 Quality Management Systems [3-0, 3 cr.]
Course covers Total Quality Management theories and application, Design for Six Sigma (DFSS) and six sigma approaches, DMAIC, Auditing, ISO standards and ISO certification.
Pre-requisites: Consent of instructor and fourth year standing.

INE542 Supply Chain Management [3-0, 3 cr.]
Special topics of current interest; Treatment of new developments in various areas of industrial engineering as warranted; Network Design in a Supply Chain; Demand Forecasting and Aggregate Planning; Transportation Networks; Sourcing. Pre-requisites: Consent of instructor and Fourth year standing.

INE544 Inventory Analysis [3-0, 3 cr.]
This course covers continuous/periodic/deterministic/stochastic inventory models, materials requirements planning(MRP), just-in-time production systems, assembly systems, and flexible manufacturing distribution systems.
Pre-requisites: INE446 Production Systems II or Consent of instructor.
INE548 Machine Scheduling [3-0, 3 cr.]
This course covers basic single machine problem (BSMP), flow shop scheduling with setup cost (TSP), and vehicle routing.
Pre-requisites: INE446 Production Systems II or Consent of instructor.

INE551 Advanced Simulation [3-0, 3 cr.]
This course covers the analysis of simulation data, input and output, validation and verification of system design, comparing alternative system configuration, simulation of complex systems, and case studies.
Pre-requisites: INE350 Simulation, INE346 Production Systems I, Fourth year standing.

INE563 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.
Pre-requisite: INE362 Production Processes and Machinery or Consent of instructor, and Fourth year standing.

INE567 Time Series Control & Process Adjustment [3-0, 3 cr.]
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 multivariate control.

INE591 Project I [3-0, 3 cr.]
This course covers selected engineering project, using acquired technical knowledge, formal report, and presentation.
Pre-requisites: Fifth year standing and INE362 Production Processes and Machinery, INE350 Simulation, INE446 Production Systems II, INE434 Facilities Planning and Layout, INE428 Project Management, GNE305 Professional Ethics.

INE592 Project II [3-0, 3 cr.]
This course covers advanced engineering project, using acquired technical knowledge, formal report, and presentation.
Pre-requisites: consent of the instructor and Fifth year standing.

INE593 Capstone Engineering Design [1-0, 1 cr.]
The course will reinforce and integrates topics covered in other courses in the curriculum and used in engineering design. Topics covered include need identification and problem definition, managing the design process, team behavior and group dynamics, design research and information gathering, concept generation and evaluation, risk, reliability, and safety, legal and ethical issues in design, communicating the design.
Pre-requisites: course to be given Concurrent with INE591 Project I.

INE599 Topics in Industrial Engineering [1-3, 3 cr.]
This course covers the treatment of new development, in various areas of industrial engineering.
Pre-requisites: consent of the instructor and Fourth year standing.
The Mechanical Engineering Program offers a broad base for preparing students for a variety of careers in the design and construction of mechanical systems. The production, transformation, transmission and control of thermal and mechanical energy constitute one of the main tracks, which rely on thermodynamics, fluid mechanics and heat transfer. This track leads to applications in internal combustion engines, steam and gas power plants, and HVAC. Solid mechanics, kinematics, and dynamics of machinery lead to applications in vibrations control and machine design. The general area of manufacturing, which is closely linked to industrial engineering, is also covered in the course of study. The program emphasizes the broad spectrum of applications of mechanical engineering, as well as the interaction with other engineering disciplines. Laboratory experimentation and computer simulation are used to train students on the understanding, design and testing of thermal and mechanical systems. 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 Mechanical Engineering Program requires the completion of 150 semester hours. 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 Mechanical Engineering Program strives to support the mission of the school by providing students with a solid and contemporary mechanical engineering curriculum and a broad education that prepares them for successful careers as mechanical engineers in a globalized and diverse world as well as graduate studies.

PROGRAM EDUCATIONAL OBJECTIVES

Within a few years of graduation, the graduates of the Mechanical Engineering program will:

1. Establish themselves as practicing mechanical engineers or be engaged in advanced studies in the areas of thermal/ fluid systems, mechanical systems and design or materials and manufacturing

2. Demonstrate leadership and function effectively as responsible members of professional teams.

3. Demonstrate ability to undertake engineering projects that address environment, society and economy requirements.

PROGRAM OUTCOMES

The students will acquire in their matriculation through the program, the following skills, knowledge, and behaviors:

a. An ability to apply knowledge of mathematics, science and engineering.

b. An ability to design and conduct experiments, as well as to analyze and interpret data.

c. An ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

d. An ability to function on multidisciplinary teams.

e. An ability to identify, formulate and solve engineering problems.

f. An understanding of professional and ethical responsibility.

g. An 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. A recognition of the need and the ability to engage in lifelong learning.

j. A knowledge of contemporary issues.

k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
## MAJOR REQUIREMENTS

### First Year

**Fall Semester (16 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>COE 212</td>
<td>Engineering Programming</td>
<td>3</td>
</tr>
<tr>
<td>ENG 202</td>
<td>Sophomore Rhetoric</td>
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<tr>
<td>CIE200</td>
<td>Statics</td>
<td>3</td>
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<tr>
<td>MEE 211</td>
<td>Engineering Graphics</td>
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<tr>
<td>MTH 201</td>
<td>Calculus III</td>
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**Spring Semester (16 credits)**

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**Summer Module I (6 credits)**

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<td>GNE333</td>
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**Summer Module II (4 credits)**

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<td>GNE331</td>
<td>Probability and Statistics</td>
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<td>PED 2</td>
<td>Physical Education</td>
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### Second Year

**Fall Semester (15 credits)**

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<td>MEE311</td>
<td>Fluid Mechanics</td>
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<td>MEE312</td>
<td>Fluid Mechanics Lab</td>
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<td>MEE301</td>
<td>Thermodynamics</td>
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<tr>
<td>MEE351</td>
<td>Computer Aided Engineering</td>
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<tr>
<td>MEE321</td>
<td>Material Properties and Processes</td>
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<td>MEE212</td>
<td>Computer Applications in IME</td>
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**Spring Semester (17 credits)**

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<tr>
<td>MEE403</td>
<td>Heat Transfer</td>
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<tr>
<td>MEE404</td>
<td>Heat Transfer - Lab</td>
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<tr>
<td>MEE391</td>
<td>Instrumentation and Measurements</td>
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<td>MEE320</td>
<td>Strength of Material</td>
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<td>MEE341</td>
<td>Kinematics and Dynamics of Linkages</td>
<td>3</td>
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<tr>
<td>MEE332</td>
<td>Production Processes and Machinery</td>
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<td>MEE333</td>
<td>Production Processes and Machinery Lab</td>
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**Summer Module I (5 credits)**

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<tr>
<td>ENG203</td>
<td>Fundamentals of Oral Communication</td>
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<td>GNE301</td>
<td>Professional Communication</td>
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**Summer Module II (4 credits)**

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<td>Liberal Arts Curriculum Elective</td>
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<td>HLT201</td>
<td>Basic Health</td>
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### Third Year

**Fall Semester (15 credits)**

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<tr>
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<td>MEE442</td>
<td>Machine Dynamics</td>
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<td>Machine Dynamics Lab</td>
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<td>MEE445</td>
<td>Control Systems</td>
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<td>Control Systems Lab</td>
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<td>MEE414</td>
<td>Thermal Systems Design</td>
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**Spring Semester (17 credits)**

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>INE428</td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>INE491</td>
<td>Seminar on Contemporary Issues</td>
<td>2</td>
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<tr>
<td>MEE302</td>
<td>Energy Conversion</td>
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<tr>
<td>MEE422</td>
<td>Mechanical Engineering Design</td>
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**Summer Module II (6 credits)**

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<td>MEE498</td>
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### Fourth Year

**Fall Semester (14 credits)**

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<td>MEE591</td>
<td>Project I</td>
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<tr>
<td>INE402</td>
<td>Optimization</td>
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<td>MEE515</td>
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**Spring Semester (15 credits)**

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<tr>
<td>INE320</td>
<td>Engineering Economy I</td>
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### Technical Electives

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<tr>
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<tbody>
<tr>
<td>GNE334</td>
<td>Engineering Analysis II</td>
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<tr>
<td>INE527/</td>
<td>Project Scheduling/Contracting</td>
<td>3</td>
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<tr>
<td>INE529</td>
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<tr>
<td>MEE407</td>
<td>Internal Combustion Engines</td>
<td>3</td>
</tr>
<tr>
<td>MEE421</td>
<td>Finite Element Methods</td>
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<tr>
<td>MEE503</td>
<td>Power Plant Engineering</td>
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<td>MEE505</td>
<td>Solar Systems</td>
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<td>MEE513</td>
<td>Gas Turbines</td>
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<tr>
<td>MEE515</td>
<td>Refrigeration and Air-Conditioning</td>
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<tr>
<td>MEE533</td>
<td>CAD/CAM</td>
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<td>MEE543</td>
<td>Acoustics and Vibration Control</td>
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<td>MEE590</td>
<td>Energy Audit</td>
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<tr>
<td>MEE592</td>
<td>Project II</td>
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<tr>
<td>MEE599</td>
<td>Topics in Mechanical Engineering</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Or any other approved technical elective course by the department.</td>
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Science Electives
The Science elective must be taken from the following courses:

<table>
<thead>
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<tbody>
<tr>
<td>CHM 201</td>
<td>Chemical Principles</td>
<td>3</td>
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<tr>
<td>BIO 201</td>
<td>General Biology</td>
<td>4</td>
</tr>
<tr>
<td>PHY 201</td>
<td>Electricity and Magnetism</td>
<td>4</td>
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COURSE DESCRIPTIONS

MEE211 Engineering Graphics [0-2, 1 cr.]
An introduction in the basics of 2D drafting, sketching and pictorial views, orthographic multiviews, auxiliary and section views, dimensions, drawing layouts and presentations. Basic use of a computer aided drafting software (such as AutoCAD).

MEE212 Computer Applications in IME [1-2, 2 cr.]
This course is designed to introduce students to powerful computational software such as MATLAB and MATHEMATICA and to database systems. Students will learn how to write MATLAB and MATHEMATICA programs for Industrial and Mechanical engineering applications. Array definitions and manipulations, user-defined functions, solution of differential equations, plotting, and several built in functions will be covered.

Pre-requisites: COE212 Engineering Programming.

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.

Pre-requisites: 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.

Pre-requisite: 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.

Pre-requisite: 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.

Pre-requisite: MEE241 Dynamics.

MEE312 Fluid Mechanics Lab [0-3, 1 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.

Pre-requisite: 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.

The course includes a revision of theories and principles of atomic structure and chemical bonding. Pre-requisite: sophomore standing.

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.

Pre-requisite: MEE321 Material Properties and Processes.

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.

Pre-requisites: MEE241 Dynamics and COE211 Computer Programming.
Concurrent with MEE332 Production Processes and Machinery.

MEE351 Computer Aided Engineering [2-2, 3 cr.]
This course covers the numerical design chain encompassing conceptual design techniques & methodologies, design specifications, mechanical components design, mechanical assembly, product assembly & mechanisms, basic design analysis, knowledge management, and reverse engineering. Students are required to use advanced CAD/CAM software such as CATIA V5.

Pre-requisites: MEE241 Dynamics

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.

Pre-requisite: ELE305 Introduction to Electrical Engineering, GNE331 Probability and Statistics.

MEE 391 Instrumentation and Measurements [2-3, 3 cr.]
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; use of instrumentation software.

Pre-requisites: ELE 305 Introduction to electrical engineering; GNE 331 Probability and Statistics

MEE401 Energy Systems [2-0, 2 cr.]
This course covers the energy and its transformation, balance, and open/closed systems.

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.

Pre-requisites: MTH304 Differential Equations, MEE311 Fluid Mechanics.

MEE404 Heat Transfer Lab [0-3, 1 cr.]
This course entails laboratory experiments in heat transfer.

Pre-requisites: GNE 331 Probability and Statistics; 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. The laboratory entails experiments in internal combustion engines.

Pre-requisite: 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.

MEE 414 Thermal Systems Design [3-0, 3 cr.]
This course covers the analysis and design of thermal systems using the principles developed in thermodynamics, fluid mechanics, and heat transfer. Students develop computer programs to solve open-ended thermal design problem.

Pre-requisites: MEE403 Heat Transfer.

MEE 421 Finite Element Methods [3-0, 3 cr.]
This course introduces a numerical technique used in the solution of PDE governed problems. Applications cover solid mechanics, fluid dynamics and heat transfer problems in 1D. The course provides an insight on the extension to 2D and 3D problems. Bar, truss,

MEE422 Mechanical Engineering Design [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.

Pre-requisites: MEE341 Kinematics and Dynamics of Linkages, and MTH304 Differential Equations.

MEE443 Machine Dynamics Lab [0-3, 1 cr.]
This course entails laboratory experiments in machine dynamics.

Pre-requisites: GNE 331 Probability and Statistics; 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.

Pre-requisites: GNE333 Engineering Analysis I; Concurrent with MEE442 Machine Dynamics.

MEE 446 Control Systems Lab [0-3, 1cr]
The Control Systems lab provides experiential training of the methods used in modeling, analysis, simulation, and control of engineering systems. Students will design and implement controllers using modern Instruments and software.

Concurrent with MEE445 Control Systems.

MEE 491 Seminar on Contemporary issues in MEE [2-0, 2 cr.]
This is a seminar course covering contemporary issues in Mechanical Engineering. Students are asked to research contemporary subjects in the field and present findings to the class.

Pre-requisites:  Third year standing.

MEE498 Professional Experience [0-6, 6 cr.]
This course covers professional experience through training in the execution of real-life engineering projects.

Pre-requisites: 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.

Pre-requisites: 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.

Pre-requisite: 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.

Pre-requisite: MEE403 Heat Transfer.

MEE513 Gas Turbines [3-0, 3 cr.]
This course covers the design and performance of stationary and propulsion gas turbines.

Pre-requisite: MEE302 Energy Conversion.

MEE515 Refrigeration and Air-Conditioning [3-0, 3 cr.]
This course covers principles of vapor compression and absorption refrigeration, heat pumps, psychometrics, principles of thermal comfort, and environmental aspects, determination of heating and cooling loads, and air conditioning system design and analysis.

Pre-requisite: 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.

Pre-requisite: 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.

Pre-requisite: MEE442 Machine Dynamics.

MEE590 Energy Audit [3-0, 3 cr.]
This course covers the survey of energy sources, cost analysis, alternatives, environmental issue, audit techniques, and technical reporting.

Pre-requisite: Fourth-year standing.

MEE591 Project I [3-0, 3 cr.]
This course covers selected engineering project using acquired technical knowledge, formal report, and presentation.


MEE592 Project II [3-0, 3 cr.]
This course covers advanced engineering project, using acquired technical knowledge, formal report, and presentation.

Pre-requisites: Final-year standing and the consent of the instructor.

MEE 593 Capstone Engineering Design [1-0, 1 cr.]

Course reinforces and integrates topics covered in other courses in the curriculum and used in engineering design. Topics covered include need identification and problem definition, managing the design process, team behavior and group dynamics, design research and information gathering, concept generation and evaluation, risk, reliability, and safety, legal and ethical issues in design, communicating the design.

Co-requisites: Project I

MEE599 Topics in Mechanical Engineering [1-3, 3 cr.]
This course covers the treatment of new development in various areas of mechanical engineering.

Pre-requisites: Fifth-year standing and the consent of the instructor.

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.

The program is designed to capitalize on the theories and skills learned in other disciplines, thereby uniquely preparing students for success as packaging professionals, in positions ranging from technical research and development to design, production and sales.

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 theories and skills learned in other disciplines, to prepare students for success as packaging professionals in positions ranging from technical research and development to design, production and sales.
STUDENT 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)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PKG/INE570</td>
<td>Introduction to Packaging</td>
<td>3</td>
</tr>
<tr>
<td>PKG/INE572</td>
<td>Packaging Dynamics and Permeation</td>
<td>3</td>
</tr>
<tr>
<td>PKG/INE573</td>
<td>Packaging Types and Processes</td>
<td>3</td>
</tr>
<tr>
<td>PKG/INE580</td>
<td>Packaging Design</td>
<td>3</td>
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</table>

Elective Courses (6 credits)

Design Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PKG/INE582</td>
<td>Structural Packaging</td>
<td>3</td>
</tr>
<tr>
<td>PKG/INE584</td>
<td>Package Branding</td>
<td>3</td>
</tr>
<tr>
<td>PKG/INE586</td>
<td>Computer Graphics for Packaging</td>
<td>3</td>
</tr>
<tr>
<td>PKG/INE588</td>
<td>Packaging Applications</td>
<td>3</td>
</tr>
<tr>
<td>PKG/INE589</td>
<td>Special Topic Course in Packaging Design</td>
<td>3</td>
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</tbody>
</table>

Engineering Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PKG/INE574</td>
<td>Paper and Paperboard Packaging</td>
<td>3</td>
</tr>
<tr>
<td>PKG/INE575</td>
<td>Corrugated Packaging</td>
<td>3</td>
</tr>
<tr>
<td>PKG/INE576</td>
<td>Rigid Plastic Packaging</td>
<td>3</td>
</tr>
<tr>
<td>PKG/INE577</td>
<td>Packaging for Food, Drug and Cosmetics</td>
<td>3</td>
</tr>
<tr>
<td>PKG/INE578</td>
<td>Food Preservation Packaging</td>
<td>3</td>
</tr>
<tr>
<td>PKG/INE579</td>
<td>Special Topic Course in Packaging Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: Students with Engineering or Design emphasis are advised to take the two electives in the respective area of emphasis.

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.

Pre-requisite: 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.

Pre-requisite: 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.

Pre-requisite: 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.

Pre-requisite: 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.
Pre-requisite: 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.
Pre-requisite: PKG/INE570 Introduction to Packaging.

PKG/INE576 Rigid Plastic Packaging* [3-0, 3 cr.]
This course is a study of the different methods of forming polymers into usable shapes, and the advantages and limitations of each, with case studies of plastic bottle designs, thermoform design practice, with performance of standard container tests and evaluations.
Pre-requisite: 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.
Pre-requisite: 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.
Pre-requisite: 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.
Pre-requisite: The consent of the instructor.

PKG/INE582 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 package as a work of art.
Pre-requisite: PKG/INE570 Introduction to Packaging.

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.
Pre-requisite: 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.
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.

Pre-requisites: 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.

Pre-requisite: Consent of the instructor.

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:

1. Provide engineers, coming from other engineering disciplines, with a significant opportunity to specialize in the management and optimization, of engineering systems.

2. 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.

3. Provide students with a unique, non-traditional, interdisciplinary education that is tailored to the student’s professional needs and interests.

STUDENT OUTCOMES
The students will acquire in their matriculation through the program, the following skills, knowledge, and behaviors:

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 lifelong 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.
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.

The GRE general exam is required of all applicants (GRE subject exams are not required). All applicants must submit scores for the GRE general exam (includes verbal reasoning, quantitative reasoning, and analytical writing scores). Your GRE test scores are an important part of your application. GRE test scores that are more than 5 years old will not be accepted.

The admissions committee considers several factors when making admission decisions: your academic performance at prior institutions (grades, rankings, and GPAs) and your GRE test score. The rate of graduate assistantship (GA), when requested, is directly related to your GPA and GRE scores. Letters of recommendation are optional; however, three letters are recommended, two of which to be completed by faculty who are familiar with your academic performance.

If the GPA is less than 2.75, the applicant may be admitted as “special,” as described in the Academic Rules and Regulations for Graduate Programs.

DEGREE REQUIREMENTS

The Graduate Program in Industrial Engineering and Engineering Management, with Emphasis in Engineering Management, consists of 30 credit hours, and leads to a Master of Science in Industrial Engineering and Engineering Management (Emphasis in Engineering Management).

In particular the degree requirements are:

• 30 hours of Graduate level courses.
• At least 18 hours in Engineering courses.
• No more than six credit hours in project-based courses, or Thesis work.
• At least six hours in Optimization.
• 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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>INE700</td>
<td>Advanced Statistics</td>
<td>3</td>
</tr>
<tr>
<td>INE701</td>
<td>Linear Programming</td>
<td>3</td>
</tr>
<tr>
<td>INE702</td>
<td>Integer Programming</td>
<td>3</td>
</tr>
<tr>
<td>INE703</td>
<td>Dynamic Programming</td>
<td>3</td>
</tr>
<tr>
<td>INE704</td>
<td>Stochastic Processes</td>
<td>3</td>
</tr>
<tr>
<td>INE705</td>
<td>Non-linear Programming</td>
<td>3</td>
</tr>
<tr>
<td>INE706</td>
<td>Decision Analysis</td>
<td>3</td>
</tr>
<tr>
<td>INE707</td>
<td>Network Flow</td>
<td>3</td>
</tr>
<tr>
<td>INE708</td>
<td>Queuing Theory and Applications</td>
<td>3</td>
</tr>
<tr>
<td>INE709</td>
<td>Advanced Stochastic Processes</td>
<td>3</td>
</tr>
<tr>
<td>INE711</td>
<td>Advanced Simulation</td>
<td>3</td>
</tr>
<tr>
<td>INE810</td>
<td>Special Topics in Optimization</td>
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</tbody>
</table>

**CA_2: Production Systems and Manufacturing**

<table>
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<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>INE742</td>
<td>Industrial Quality Control</td>
<td>3</td>
</tr>
<tr>
<td>INE743</td>
<td>Reliability Evaluation of Engineering Systems</td>
<td>3</td>
</tr>
<tr>
<td>INE744</td>
<td>Inventory Analysis</td>
<td>3</td>
</tr>
<tr>
<td>INE745</td>
<td>Facilities Planning and Layout</td>
<td>3</td>
</tr>
<tr>
<td>INE746</td>
<td>Materials Handling</td>
<td>3</td>
</tr>
<tr>
<td>INE748</td>
<td>Machine Scheduling</td>
<td>3</td>
</tr>
<tr>
<td>INE749</td>
<td>Transportation and Supply Chain Systems</td>
<td>3</td>
</tr>
<tr>
<td>INE761</td>
<td>Computer Aided Design/ Computer Aided Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>INE762</td>
<td>Analysis of Automated Manufacturing Systems</td>
<td>3</td>
</tr>
<tr>
<td>INE763</td>
<td>Advanced Information Technology for Industrial &amp; Manufacturing Engineering</td>
<td>3</td>
</tr>
<tr>
<td>INE764</td>
<td>Time Series Control &amp; Process Adjustment</td>
<td>3</td>
</tr>
<tr>
<td>INE840</td>
<td>Special Topics in Production Systems &amp; Manufacturing</td>
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### CA_3: Infrastructure and Construction Management

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CIE761</td>
<td>Traffic Engineering</td>
<td>3</td>
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<tr>
<td>CIE762</td>
<td>Transportation Engineering II</td>
<td>3</td>
</tr>
<tr>
<td>CIE785</td>
<td>Risk and Natural Hazard Management</td>
<td>3</td>
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<tr>
<td>CIE786</td>
<td>Highway Design and Management</td>
<td>3</td>
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<tr>
<td>CIE787</td>
<td>Concrete and Steel Construction</td>
<td>3</td>
</tr>
<tr>
<td>CIE788</td>
<td>GIS and Remote Sensing</td>
<td>3</td>
</tr>
<tr>
<td>CIE790</td>
<td>Construction Methods</td>
<td>3</td>
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<tr>
<td>INE721/CIE789</td>
<td>Cost Engineering and Control</td>
<td>3</td>
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<tr>
<td>INE722/CIE782</td>
<td>Infrastructure Management</td>
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<tr>
<td>INE724/CIE784</td>
<td>Quality Management Systems</td>
<td>3</td>
</tr>
<tr>
<td>INE727</td>
<td>Project Scheduling</td>
<td>3</td>
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<tr>
<td>INE729</td>
<td>Project Contracting</td>
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<tr>
<td>INE820</td>
<td>Special Topics in Infrastructure &amp; Construction Management</td>
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### CA_4: Finance and Economics

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<tr>
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<tbody>
<tr>
<td>BUS811</td>
<td>Business Economics</td>
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<tr>
<td>BUS821</td>
<td>Financial Accounting</td>
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<tr>
<td>BUS836</td>
<td>Modern Portfolio Management</td>
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<td>BUS837</td>
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<td>BUS861</td>
<td>Financial Management</td>
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<td>INA831</td>
<td>International Political Economy</td>
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<tr>
<td>INE771</td>
<td>Financial Engineering</td>
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<td>INE772</td>
<td>Advanced Financial Engineering</td>
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</tr>
<tr>
<td>INE781</td>
<td>Engineering Economy II</td>
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<tr>
<td>INE870</td>
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### CA_5: Software

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<tr>
<td>COE716/CSC723</td>
<td>Knowledge-Based Systems</td>
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</tr>
<tr>
<td>COE717</td>
<td>Parallel Programming and Cluster Workstations</td>
<td>3</td>
</tr>
<tr>
<td>COE718/CSC450</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>COE741/CSC460</td>
<td>Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>COE742</td>
<td>Neural Networks</td>
<td>3</td>
</tr>
<tr>
<td>COE752/CSC711</td>
<td>Design and Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>COE753/CSC714</td>
<td>Heuristic Optimization</td>
<td>3</td>
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<tr>
<td>CSC475</td>
<td>Advanced Topics in Databases</td>
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### Other Courses

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<tr>
<td>INE800</td>
<td>Project Course</td>
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<td>INE801</td>
<td>Special Topic Courses</td>
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<tr>
<td>INE899</td>
<td>Thesis</td>
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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 divestiture, capital budgeting, portfolio selection, inventory control, systems reliability, and maximization of expected utility with constant risk posture.

Pre-requisite: 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 non-linear/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.

Pre-requisite: 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.

Pre-requisite: 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.

Pre-requisite: 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.

INE742 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.

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.

Pre-requisite: 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.

Pre-requisite: 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.

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 multivariate 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.

Pre-requisite: INE704 Stochastic Processes.

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.

Pre-requisite: 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.

Pre-requisite: Consent of the instructor.
IN810 Special Topics in Optimization [3-0, 3 cr.]
This course covers topics of current interest in optimization, selected by instructor.

Pre-requisite: Consent of the instructor.

IN820 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.

Pre-requisite: Consent of the instructor.

IN840 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.

Pre-requisite: Consent of the instructor.

IN870 Special Topics in Finance & Economics [3-0, 3 cr.]
This course covers topics of current interest in finance, and economics, selected by the Instructor.

Pre-requisite: Consent of the instructor.

IN899 Thesis [6-0, 6 cr]
This course is an independent directed study, design, research in the field of interest of the student or Instructor.

GNE305 Professional Ethics [1-0, 1 cr.]
Introduce the fundamental canon of ethics in engineering practices and the associated professional liabilities. Reinforce the importance of safety as it relates to engineering design and implementation. The course involves teamwork researching a situation related to professional and ethical responsibilities.

Pre-requisites: Third year standing.

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.

Pre-requisite: 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.

Pre-requisite: MTH204 Differential Equations and GNE333 Engineering Analysis I.

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.

Pre-requisites: MTH204 Differential Equations and GNE333 Engineering Analysis I.
The Gilbert & Rose-Marie Chagoury School of Medicine
The Gilbert & Rose-Marie Chagoury School of Medicine

INTERIM DEAN
Dr. N. Lynn Eckhert, M.D., Dr PH

ASSISTANT DEANS
Dr. Zeinat Hijazi, M.D., Education
Dr. Pierre Zalloua, Ph.D., Research
Dr. Sola Bahous M.D., Ph D Clinical Affairs

FACULTY
Dr. Nadia Asmar, M.D., Instructor in Medicine/General Medicine
Dr. Sola Bahous, M.D., Ph.D., Assistant Professor of Medicine (Nephrology)/ Pharmacology
Dr. Mary Deeb, Ph.D., Senior Consultant in Epidemiology and Biostatistics
Dr. Malko Dunya, M.D., Instructor in Medicine/Anatomy
Dr. N. Lynn Eckhert, M.D., Dr PH Professor of Paediatrics
Dr. Wissam Faour, Ph.D., Instructor in Medicine/Pharmacology
Dr. Anna Farra, M.D., Instructor in Medicine/Microbiology
Dr. Mona Haidar, M.D., M.P.H., Instructor in Medicine/Social Medicine
Dr. Zeinat Hijazi, M.D., Professor of Pediatrics (Pulmonary Diseases)
Dr. Maya Khairallah, Ph.D., Assistant Professor of Medicine/Biochemistry
Dr. Selim Nasser, M.D., Assistant Professor of Medicine /Pathology
Dr. Pierre Zalloua, Ph.D., Associate Professor of Medicine/Genetics
Dr. Tony G Zreik, M.D., M.B.A., Professor of Obstetrics/Gyneocology

The Gilbert and Rose Marie Chagoury School of Medicine (SOM) at LAU began its first year of instruction on September 1, 2009.

The school accepts applications from pre-medical students who meet its admission requirements (available at http://www.lau.edu.lb/).

Class sizes in the first year were approximately 24 students and will increase to a maximum of 64 students by the beginning of its fifth academic 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 School of Medicine also emphasizes a world-class, basic, and clinical/translational research, particularly targeting the regional health needs. The school aims for regional pre-eminence by adopting strategic objectives, which will establish triangular collaborations among regional medical centers, their partners in American medicine, and LAU.

HARVARD MEDICAL INTERNATIONAL
Harvard Medical International (HMI) and LAU have entered into a long-term relationship focused on the development of a state-of-the-art academic medical institution based in Byblos. The school features an innovative American-style curriculum designed to bring the best in medical education to the most pressing health care challenges facing the people of Lebanon and the surrounding region.
LEARNING OBJECTIVES

Graduates of LAU’s School of Medicine 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 a 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 for a patient’s problem(s) with due consideration to benefits, risks, costs and preferences.
3. Prioritize a patient’s 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 counselling, 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.

PROGRAMS
The School of Medicine offers a four-year study program leading to the M.D. degree.

CURRICULUM
The School of Medicine’s curriculum has been adopted in coordination with Harvard Medical International and the International Advisory Council. It embraces systems-based learning for the pre-clinical years, following an introductory “foundation block” during the first three months of Medicine I.

The curriculum is distinct from the traditional lecture-based curriculum as it is:

- Integrated
- Systems-based
- Relies on problem solving for learning (Problem-Based Learning)
- Promotes self-directed learning
- Includes early clinical exposure

The school learning objectives will be achieved through a four-year medical curriculum to be delivered according to four themes:

- Basic and Clinical Science
- Clinical Competence
- Professional and Behavioral
- Social Medicine and Public Health.

Methods of instruction include:

- Lectures,
- Problem-based learning,
- Laboratory work,
- Simulations,
The Gilbert & Rose-Marie Chagoury School of Medicine

e. Tutorials,
f. Case studies,
g. Self-directed learning
h. Clinical experience with real as well as standardized patients.

IMS711: The Foundations of Medicine:
This module introduces the medical student to the basic disciplines underlying the practice of medicine. It contains the full dissection of the human body coupled to clinical correlations (anatomy), as well as the basic principles of cell histology, pathology, physiology, biochemistry, pharmacology, genetic medicine, clinical skills, behavioral and ethical medicine, communication skills, evidence-based medicine, social medicine, preventive medicine, biostatistics and public health.

IMS721, 731, 741, 751, 761, 771, 781, and 791:
These modules provide an integrated approach to each of the organ systems of the body delivered according to four themes: (I) Basic and Clinical Science, (II) Clinical Competence, (III) Professional and Behavioral, and (IV) Social Medicine and Public Health.

MEDICINE III AND MEDICINE IV:
The third and fourth-year course requirements consist of rotations in specific clinical subspecialties and electives.

MEDICINE III
Students in Medicine III are required to take 8 week rotations in Medicine, Surgery, Paediatrics, Obstetrics and Gynecology and 4 week rotations in Psychiatry, Primary Care and Neurology. The rotations will consist of in-patient and ambulatory clinical and community experiences. The primary site of the rotations will be at University Medical Centre- Rizk Hospital.
MEDICINE IV

The rotations in Medicine IV are under development. Medicine IV will consist of both required rotations, selective rotations (choice among requirements) and elective rotations. The required rotations will be in the areas of medicine and its sub specialties, surgery and its subspecialties, paediatrics and its sub specialties, obstetrics and gynaecology. Electives will be offered in areas across the spectrum of medicine including diagnostic specialities, public health and community medicine and international rotations. Electives will also be offered in research. The number of weeks for each rotation will vary from 1 week to 2 months. Medicine IV will be completed in mid May 2012.

INSTITUTES

LAU INSTITUTE FOR HUMAN GENETICS (LAUIHG)

LAUIHG constitutes a regional hub for genetics research and education intended to build a strong foundation in multiple disciplines within the field of human genetics. It involves faculty members from three schools: Medicine, Art and sciences, and Pharmacy. The institute supports medical research, focusing primarily on cardiovascular disease, diabetes and cancer. The mission is to develop and foster excellence in human genetics research and education, and provide a bridge between basic and clinical sciences, particularly as they relate to understanding and treating cardiovascular disease, diabetes and cancer.
The Alice Ramez Chagoury School of Nursing
The Alice Ramez Chagoury School of Nursing

The Alice Ramez Chagoury School of Nursing at the Lebanese American University is one of the most prestigious Schools of Nursing in Lebanon, and a pioneer in interprofessional education in the Middle East. The School is committed to excellence in education through a concept-based curriculum and experiential learning approaches, as well as a learning environment that promotes personal development.

The School currently offers a Bachelor of Science in Nursing (B.S.N.) that will enable graduates to work as generalist nurses. The School welcomes its second nursing class in Fall 2011.

SCHOOL MISSION

The Alice Ramez Chagoury School of Nursing is dedicated to improving the health of the people of Lebanon and the Middle East region by educating professional nurses and contributing to advances in health care through innovative research, scholarship, and service. To assure academic excellence the curriculum is built on a liberal arts foundation and complements nursing science with knowledge from the biomedical and social sciences. Through an interprofessional educational process we engage students as whole persons, preparing them to be empathic, competent, and ethical clinicians and future leaders in healthcare.

VISION

To be the pioneering school of nursing in Lebanon and the Middle East region through interprofessional education of knowledgeable, skilled and conscientious professional nurses and generation of new nursing knowledge to address contemporary health care needs.

GOALS OF CURRICULUM

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

1. Offer a curriculum that has depth in the biomedical and nursing sciences and a broad base in liberal arts and sciences.
2. Provide interprofessional learning experiences in the classroom, clinical laboratory, and health care settings.
3. Foster in students an appreciation for the values that are the foundation of professional nursing practice.
4. Use innovative pedagogical approaches that enable students to integrate knowledge, skilled know-how and ethical comportment to plan, provide and evaluate patient care.
5. Prepare students to practice in a rapidly changing and complex health care environment.
6. Promote the skills of scholarly inquiry and research to lay the foundation for life-long learning and graduate education in nursing.

STUDENT LEARNING OUTCOMES

Graduates of the Bachelor of Science in Nursing program will be able to:

1. Combine knowledge from liberal arts and sciences with knowledge of nursing and biomedical sciences to care for individuals, families, communities and populations.
2. Provide holistic, evidence-based nursing care to promote the health and well-being of individuals, families, communities and populations.
3. Base practice on the fundamental nursing values of accountability, advocacy, altruism, autonomy, human dignity, integrity and social justice.
4. Provide care that is respectful and sensitive to diversity in patients’ cultural traditions, religion, age, gender and socioeconomic circumstances.
5. Use biomedical and information technologies to deliver high quality care, support clinical decision making, communicate and mitigate error.
6. Show leadership through involvement in patient safety and quality improvement initiatives.
7. Partner with patients and members of the interprofessional team to achieve optimal outcomes of care.
8. Practice nursing with an awareness of the influence that economics, policy, regulation and changes in the environment have on the delivery of care and the nursing profession.


DEAN
Nancy Hoffart, PhD, RN, Professor

ASSISTANT DEAN
Myrna A.A. Doumit, PhD, RN, Associate Professor

FACULTY
Mira Abi Saad, MSN, RN, Clinical Instructor
Rita Doumit, BSN, MPH, RN, Instructor
Grace Khatcherian, MSN, RN, Clinical Instructor
Ola Sukkarieh, PhD, RN, Assistant Professor

PROGRAMS / DEGREES AVAILABLE

BACHELOR OF SCIENCE IN NURSING

Sophomore Year
Fall Semester (13 credits)
- CHM200 Essentials of Chemistry 3
- PHE201 Physical Education 1
- BIO200 Basic Biology 3
- NUT201 Fundamentals of Human Nutrition 3
- PSY234 Development across the Life Span 3

Spring Semester (17 credits)
- ENG202 Sophomore Rhetoric 3
- PSY201 Introduction to Psychology 3
- NUR201 Fundamentals of Nursing and Health Assessment 4
- ARA2XX Arabic Language or Literature 3
- BIO343 Anatomy and Physiology 3
- BIO344 Anatomy and Physiology Lab 1

Summer Semester (6 credits)
- ENG203 Fundamentals of Oral Communication 3
- NUR210 Professional Nursing Concepts I 3
- NUR230 Nursing Cooperative Experience I 0

Junior Year
Fall Semester (16 credits)
- PHA209 Principles of Pathophysiology and Immunology 4
- BIO311 Microbiology 3
- NUR312 Pharmacology for Nursing Practice 3
- NUR320 Health and Illness Concepts I 3
- NUR340 Core Nursing Practicum I 3

Spring Semester (16 credits)
- STA205 Biostatistics 3
- PHA210 Systems Pathophysiology 4
- NUR321 Health and Illness Concepts II 3
- NUR341 Core Nursing Practicum II 3
- NUR342 Core Nursing Practicum III 3

Summer Semester (3 credits)
- NUR315 Health Care Research and Evidence-based Practice 3
- NUR330 Nursing Cooperative Experience II 0

Senior Year
Fall Semester (18 credits)
- Liberal Arts Core (LAC) Arts elective 3
- LAC History, Philosophy, Religion elective 3
- NUR410 Professional Nursing Concepts II 3
- NUR420 Health and Illness Concepts III 3

Student chooses 2 of the following:
- NUR440 Maternal-Child Clinical Intensive 3
- NUR441 Mental Health Clinical Intensive 3
- NUR442 Adult Health Clinical Intensive 3
- NUR443 Promotion of Healthy Lifestyles Clinical Intensive 3
- NUR444 High Acuity Nursing Clinical Intensive 3

Spring Semester (15 credits)
- LAC Literature elective 3
- NUR411 Professional Nursing Concepts III 3
- NUR415 Nursing Synthesis 3
- NUR480 Capstone Clinical 3

RULES AND REGULATIONS

BACHELOR OF SCIENCE IN NURSING (B.S.N.) ADMISSION

Students seeking admission into the bachelor’s of science in nursing program should contact the Office of Admissions to complete the application process. Students admitted to LAU after completion of their secondary education are eligible to enroll in the nursing program. LAU freshman who have completed the freshman requirements, and students in other majors may seek admission to the nursing program through petition.

ACADEMIC RULES AND REGULATIONS FOR THE B.S.N. PROGRAM

The School of Nursing follows most of the University-wide academic rules and regulations that appear in the Academic Catalog. For exceptions and additional rules and regulations
that are specific to the BSN program, see the 2011-2012 School of Nursing Student Handbook located on the School of Nursing website, http://nursing.lau.edu.lb.

GRADUATION REQUIREMENTS
In order to qualify for the B.S.N. degree the student must:

- Holders of the Lebanese Baccalaureate or equivalent who are admitted as sophomores must earn at least 104 credits of which they must take 52 credit hours in residence. Transfer students must take 30 credit hours in residence. Students entering as freshmen must earn at least 134 credits (see general University requirements for additional details).
- Successfully complete all requirements including LAC, professional courses and prerequisite courses.
- Earn a grade point average of at least 2.0 in all professional courses.
- Earn a cumulative grade point average of at least 2.0.
- Earn P (pass) grades in the cooperative education experiences.
- Complete the required courses within seven years from the time of first enrollment in NUR201.

COURSE DESCRIPTIONS

NUR201 Fundamentals of Nursing and Health Assessment [2-6, 4 cr.]
In this course students learn to apply the nursing process in performing health assessment and nursing fundamentals for individuals across the lifespan and in various health care settings.

Prerequisite: admission to the nursing major.
BIO 344 Anatomy and Physiology Lab
Co-requisite: BIO343 Anatomy and Physiology.

NUR210 Professional Nursing Concepts I [3-0, 3 cr.]
In this course students learn concepts associated with understanding oneself and others in the context of professional nursing practice and are introduced to the nursing metaparadigm.

Prerequisites: PSY201 Introduction to Psychology, NUR201 Fundamentals of Nursing and Health Assessment. Co-requisite: NUR230 Nursing Cooperative Experience I.

NUR230 Nursing Cooperative Experience I. [0 cr.]
In the first cooperative (co-op) experience students are employed on general patient care units in hospitals, working a minimum of 216 hours to complete the co-op requirement. The co-op student functions as an assistant to a registered nurse (RN) and gains competence in performing fundamental nursing techniques delegated and supervised by the RN. Students must successfully complete NUR201 Fundamentals of Nursing and Health Assessment before securing a co-op position.

NUR312 Pharmacology for Nursing Practice [3-0, 3 cr.]
This course provides fundamentals of pharmacology and applied drug therapy. Topics include general principles of drug action, drug distribution, and drug elimination, with attention to the development of clinical reasoning skills necessary to identify, avoid, and solve practical drug-related problems. Specific prototypes of selected drug classifications provide the framework for understanding the action, use, side-effects, and nursing implications of drugs.

Prerequisite: Admission to the nursing major, CHM200.

NUR315 Health Care Research and Evidence-based Practice [3-0, 3 cr.]
This course is an introduction to health care research. Emphasis is on the research process, commonly used research designs and methods, and application of research findings and other evidence to practice.

Prerequisites: NUR201 Fundamentals of Nursing and Health Assessment, NUR210 Professional Nursing Concepts I, STA205 Biostatistics.

NUR320 Health and Illness Concepts I [3-0, 3 cr.]
In this introductory course students gain knowledge of concepts associated with individual health and illness requiring nursing care. Concept categories covered include health and health maintenance, regulation and homeostasis, hemostasis, stress and coping, and protection.

Prerequisites: NUR201 Fundamentals of Nursing and Health Assessment, NUR210 Professional Nursing Concepts I. Co-requisites: NUR340 Core Nursing Practicum I, BIO311 Microbiology, PHA209 Principles of Pathophysiology and Immunology.
NUR321 Health and Illness Concepts II [3-0, 3 cr.]
This is the second of three courses in which students learn concepts associated with an individual’s health and illness that require nursing care. Concept categories include regulation and homeostasis, sexual reproduction, oxygenation, comfort, social interactions, and cognition.
Prerequisite: NUR320 Health and Illness Concepts I. Co-requisite: PHA210 Systems Pathophysiology.

NUR330 Nursing Cooperative Experience II [0 cr.]
In the second cooperative experience students are employed in various health care agencies, working a minimum of 384 hours to complete the requirement. The co-op student functions in an assistant role, on an assigned unit, providing nursing care at the advanced beginner level, as delegated to and supervised by the RN. The student must have completed the Nursing Cooperative Experience I as well as NUR342 Core Nursing Practicum III prior to pursuing the second co-op experience.

NUR340 Core Nursing Practicum I [0-9, 3 cr.]
In this course students are introduced to clinical nursing care of patients in various health care settings. Students apply selected concepts related to health and illness and professional nursing in providing patient care. The clinical schedule will include inpatient and community care and may include day, evening, night, and weekend experiences.
Prerequisites: NUR201 Fundamentals of Nursing and Health Assessment, NUR210 Professional Nursing Concepts I, Co-requisite: NUR320 Health and Illness Concepts I, NUR312 Pharmacology for Nursing Practice.

NUR341 Core Nursing Practicum II [0-9 (0-18 for 7 weeks), 3 cr.]
In this course students deliver clinical nursing care to patients in the inpatient setting. Students apply selected concepts related to health and illness and professional nursing, and use the nursing process in providing patient care. The clinical schedule may include day, evening, night, and weekend experiences.
Prerequisite: NUR340 Core Nursing Practicum I. Co-requisite: NUR321 Health and Illness Concepts II.

NUR342 Core Nursing Practicum III [0-9 (0-18 for 7 weeks), 3 cr.]
In this course students learn to deliver clinical care for multigenerational families in various health care settings in the community.
Students apply selected concepts related to health and illness and professional nursing, and use the nursing process to provide patient care. The clinical schedule may include day, evening, night, and weekend experiences.
Prerequisite: NUR340 Core Nursing Practicum I. Co-requisite: NUR321 Health and Illness Concepts II.

NUR410 Professional Nursing Concepts II [3-0, 3 cr.]
In this course students learn concepts associated with nursing roles and behaviors in the delivery of health care and their application in multiple settings. Students are introduced to aggregates (communities and populations) as the unit of care.
Prerequisite: NUR210 Professional Nursing Concepts I.

NUR411 Professional Nursing Concepts III [2-3, 3 cr.]
This course addresses concepts related to organization of health care, regulation of health care and nursing practice, and the influence of economic, legal, and environmental factors on the availability and quality of care. Nursing roles of care coordinator and delegator are examined. In the clinical component of the course students conduct an assessment of either a microsystem or a community.
Prerequisite: NUR410 Professional Nursing Concepts II.

NUR415 Nursing Synthesis [1-3, 2 cr.]
This course is a synthesis of professional nursing and health and illness concepts. Clusters of concepts will be applied in simulation and other learning activities.
Prerequisites: NUR420 Health and Illness Concepts III. Co-requisite: NUR411 Professional Nursing Concepts III.

NUR420 Health and Illness Concepts III [3-0, 3 cr.]
This is the final course involving concepts associated with an individual’s health and illness that require nursing care. Concept categories include regulation and homeostasis, protection, activity, sensory perception, stress and coping, cognition, and behavior.
Prerequisite: NUR321 Health and Illness Concepts II.
NUR440 Maternal Child Clinical Intensive [1-6 (2-12 for 7 weeks), 3 cr.]
This course includes clinical practice and didactic content that focuses on knowledge and skills relevant to the care of pregnant women, newborns, and children in various health care settings. Central to the course is family-centered care, with particular attention to concepts related to health promotion, reproduction, growth and development, family dynamics, coping, culture, and interpersonal relationships. The clinical schedule will include inpatient and community experiences and may include day, evening, night, and weekend experiences.


NUR441 Mental Health Clinical Intensive [1-6 (2-12 for 7 weeks), 3 cr.]
This course includes clinical practice and didactic content that focuses on knowledge and skills relevant to the care of patients with acute and chronic mental health problems. Students examine variations in foci of care for mental health patients. Concepts addressed include therapeutic communication, ethics, advocacy, education, family dynamics, altered thought process, self, mood and affect, interpersonal relationships, interpersonal violence, and addiction. The clinical schedule will include inpatient and community experiences and may include day, evening, night, and weekend experiences.


NUR442 Adult Health Clinical Intensive [1-6 (2-12 for 7 weeks), 3 cr.]
This course includes clinical practice and didactic content that focuses on knowledge and skills relevant to the care of adult and geriatric patients with acute and chronic illness. Skill development includes all aspects of care for populations of patients with medical and surgical conditions. Concepts including pain, comfort, perfusion, oxygenation, mobility, tissue integrity, cognitive impairment, fluid and electrolyte balance, anxiety, and family dynamics. The clinical schedule will include inpatient and ambulatory experiences and may include day, evening, night, and weekend experiences.


NUR443 Promotion of Healthy Lifestyles Clinical Intensive [1-6 (2-12 for 7 weeks), 3 cr.]
This course includes clinical practice and didactic content that focuses on knowledge and skills to foster health behavior change in individuals, families, communities, and populations. Students will plan, deliver, and evaluate health education and behaviour change programs for individuals of all ages. This course incorporates concepts related to health promotion, change, motivation, educator, leader, advocate, communication, power, anxiety, culture, and human diversity. The clinical schedule may include inpatient, ambulatory, and community experiences as well as experiences on days, evenings, nights, and weekends.


NUR444 High Acuity Nursing Clinical Intensive [1-6 (2-12 for 7 weeks), 3 cr.]
This course includes clinical practice and didactic content that focuses on knowledge and skills relevant to the care of patients with multisystem problems in critical care units. Central to the clinical experience is the synthesis of health and illness concepts in managing critically ill patients, including oxygenation, perfusion, elimination, acid-base balance, fluid and electrolyte balance, infection, inflammation, immunity, intracranial perfusion, anxiety, family dynamics, and ethics. The clinical schedule will include inpatient experiences and may include day, evening, night, and weekend experiences.

NUR480  Capstone Clinical. [0-12 (0-24 for 7 weeks), 4 cr.]
In this course students have precepted clinical practice experience in selected health care settings. Clinical may occur in inpatient, ambulatory, and community settings and include day, evening, night, and weekend experiences.

Prerequisites: Successful completion of three Clinical Intensives. Co-requisite: NUR411 Professional Nursing Concepts III.

CLINICAL SIMULATION CENTER
The Alice Ramez Chagoury School of Nursing shares a Clinical Simulation Center with the Gilbert and Rose-Marie Chagoury School of Medicine on the Byblos campus. The Center has been designed to look and function like the health care settings in which students will practice after graduation. The 8-bay inpatient simulation laboratory represents various clinical units in hospitals, such as general ward, intensive care unit, and newborn nursery. This laboratory is equipped with state-of-the-art medical equipment and supplies; infant, pediatric and adult human patient simulators; and clinical task trainers. The 8-room outpatient laboratory replicates a typical ambulatory clinic and its accoutrements. The Center is equipped with videotaping capability so faculty can review and assess student progress in acquiring foundational and advanced clinical skills and students can review and reflect on their performance. The Center provides a realistic and safe setting for students as they learn complex skills, apply theoretical knowledge to simulated patient care situations and develop teamwork skills. Experiential learning in the Center will enhance students’ competence and confidence when caring for patients in hospitals and other care delivery sites.
The School of Pharmacy
The School of Pharmacy

The School of Pharmacy was established in 1993 to promote pharmacy education, research, and pharmaceutical care.

MISSION
The school is responsible for producing pharmacists entrusted with the best standards to apply and disseminate new information about drugs and the ever-changing health care systems. Graduates will be competent to practice pharmacy in all settings. Additionally, they will have the values to serve society as caring and ethical professionals.

PROGRAM EDUCATIONAL GOALS
The goals of the program are to prepare pharmacy graduates to:

- Provide evidence-based patient centered care to optimize pharmacotherapy outcomes in various multidisciplinary health-care practice settings.
- Manage pharmacy operations in hospitals, community pharmacies, and industrial settings.
- Promote public health awareness and disease prevention, through innovation in the practice of pharmacy, for the benefit of the individual and the community being served.
- Perform pharmacy duties in accordance with legal, ethical, socio-economic and professional standards.
- Integrate scholarly research with clinical pharmacy practice and commit to self-directed lifelong learning.

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 pharmacoeconomics.

The PP Department provides the didactic and experiential component of the clinical 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, hospitals, 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 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.
The School of Pharmacy

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Pierre Zalloua, Ph.D.

ASSOCIATE DEAN FOR ACADEMIC AFFAIRS
Yolande Saab, Pharm.D., Ph.D.

ASSISTANT DEAN FOR STUDENTS AFFAIRS
Lydia Boutros Sholy, R. Ph., Pharm.D.

CHAIRS
Roy Kanbar, D.Pharm. Ph.D.
(Pharmaceutical Sciences)
Aline Saad, Pharm.D.
(Pharmacy Practice)
Rony Zeenny Pharm.D.
(Director of Experiential Education)

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S. Chamoun-Nasser, Pharm.D.
H. Dimassi, Ph.D.
W. Kabbara, Pharm.D.
R. Kanbar, D.Pharm. Ph.D.
L. Karaoui, Pharm.D., B.C.P.S.
G. Khoury, Pharm.D.
A. Milane, D.Pharm. Ph.D.
M. Mroueh, Pharm.D.
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E. Ramia, Pharm.D.
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* 50% SOP + 50% SAS

Part-time Faculty

D. Antonios, D.Pharm. Ph.D.
B. Chami, Pharm.D.
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W. Faour, Ph.D.
L. Haddad, Ph.D.
S. Helou, Pharm.D.
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W. Abi Ghanem, R.Ph.
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N. Abi Ghosn, R.Ph.
R. Abi Khalil
S. Addada, R.Ph.
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A. Ali, R.Ph.
F. Antaki, R.Ph.
N. Antaki, R.Ph.
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R. Azzam, R.Ph.
M. Bawab, R.Ph.
C. Barbar, R.Ph.
R. Batrouni, R.Ph.
M. Bitar, R.Ph.
R. Bitar
M. Bsat
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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 available on the LAU website.

#### Pre-Professional Year I

<table>
<thead>
<tr>
<th>Fall Semester (17 credits)</th>
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<tbody>
<tr>
<td>ARA201 Appreciation of Arabic Literature 3</td>
</tr>
<tr>
<td>CHM201 Chemical Principles 3</td>
</tr>
<tr>
<td>BIO201 Biology I 4</td>
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<tr>
<td>—— LAC—Social Sciences 3</td>
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#### Spring Semester (16 credits)

| PHA204 Computer Application to Pharmacy 2 |
| PHA205 Statistics for Health Profession Majors 3 |
| PHA211 Microbiological Basis of Disease 3 |

#### Pre-Professional Year II

<table>
<thead>
<tr>
<th>Fall Semester (14 credits)</th>
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<tbody>
<tr>
<td>PHA209 Principles of Pathophysiology and Immunology 4</td>
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<tr>
<td>CHM312 Organic Chemistry II 3</td>
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<tr>
<td>CHM314 Organic Chemistry II Lab 1</td>
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<tr>
<td>ENG203 Fundamental of Oral Communication 3</td>
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<table>
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<tr>
<th>Spring Semester (17 credits)</th>
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<tbody>
<tr>
<td>PHA208 Medical Biochemistry 4</td>
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<tr>
<td>PHA210 Systems Pathophysiology 4</td>
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<tr>
<td>PHA222 Professional Communication 1</td>
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<tr>
<td>PHA333 Pharmacy Management 3</td>
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<td>PHA— Professional Elective 2</td>
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#### Professional Year I

<table>
<thead>
<tr>
<th>Fall Semester (18 credits)</th>
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<tbody>
<tr>
<td>PHA308 Pharmaceutical Analysis &amp; Biotechnology 2</td>
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<tr>
<td>PHA309 Pharmaceutical Analysis &amp; Biotechnology, Lab 1</td>
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<tr>
<td>PHA312 Medicinal Chemistry I 3</td>
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<tr>
<td>PHA314 Dosage Forms I 3</td>
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<tr>
<td>PHA315 Dosage Forms I, Lab 1</td>
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<tr>
<td>PHA320 Physical Assessment 2</td>
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<tr>
<td>PHA322 Professional Communication 1</td>
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<tr>
<td>PHA333 Pharmacy Management 3</td>
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<td>PHA— Professional Elective 2</td>
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<table>
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<tr>
<th>Spring Semester (15 credits)</th>
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<tbody>
<tr>
<td>PHA313 Medicinal Chemistry II 3</td>
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<tr>
<td>PHA316 Dosage Forms II 3</td>
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<tr>
<td>PHA325 Pharmacy Practice &amp; Ethics 2</td>
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<tr>
<td>PHA340 Pharmacoepidemiology I 2</td>
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<table>
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<tr>
<th>Summer Semester (6 credits)*</th>
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<tbody>
<tr>
<td>PHA398 Pharmacy Practice Management I 3</td>
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<tr>
<td>PHA399 Pharmacy Practice Management II 2</td>
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<tr>
<td>PHA397 Introduction to Professional Pharmacy Practice Experience 1</td>
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*Students are expected to complete PHA 397, 398, 399 over summer P1 and summer P2.*
The School of Pharmacy

Professional Year II

Fall Semester (18 credits)

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHA441</td>
<td>Pharmacotherapeutics II</td>
<td>3</td>
</tr>
<tr>
<td>PHA442</td>
<td>Pharmacotherapeutics III</td>
<td>3</td>
</tr>
<tr>
<td>PHA430</td>
<td>Pharmacology II</td>
<td>4</td>
</tr>
<tr>
<td>PHA422</td>
<td>Pharmacokinetics &amp; Biopharmaceutics</td>
<td>4</td>
</tr>
<tr>
<td>PHA421</td>
<td>Drug Information &amp; Literature Evaluation</td>
<td>2</td>
</tr>
<tr>
<td>PHA—</td>
<td>Professional Elective</td>
<td>2</td>
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</tbody>
</table>

Spring Semester (17 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHA443</td>
<td>Pharmacotherapeutics IV</td>
<td>3</td>
</tr>
<tr>
<td>PHA444</td>
<td>Pharmacotherapeutics V</td>
<td>3</td>
</tr>
<tr>
<td>PHA445</td>
<td>Pharmacotherapeutics VI</td>
<td>3</td>
</tr>
<tr>
<td>PHA449</td>
<td>Dispensing and Pharmaceutical Care</td>
<td>3</td>
</tr>
<tr>
<td>PHA452</td>
<td>Toxicology</td>
<td>3</td>
</tr>
<tr>
<td>PHA435</td>
<td>Pharmacognosy &amp; Evidence-Based Herbal Medicine</td>
<td>2</td>
</tr>
</tbody>
</table>

Professional Year III

Fall Semester (19 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>PHA550</td>
<td>Introduction to Pharmacogenomics</td>
<td>1</td>
</tr>
<tr>
<td>PHA557</td>
<td>Pharmacoeconomics</td>
<td>3</td>
</tr>
<tr>
<td>PHA560</td>
<td>Clinical Nutrition &amp; Diet Therapy</td>
<td>2</td>
</tr>
<tr>
<td>PHA570</td>
<td>Professional Pharmacy Practice – Hospital/DIC Experience</td>
<td>6</td>
</tr>
<tr>
<td>PHA571</td>
<td>Professional Pharmacy Practice – Community Experience</td>
<td>6</td>
</tr>
<tr>
<td>PHA 523</td>
<td>Clinical Pharmacokinetics* or another Professional Elective</td>
<td>1</td>
</tr>
</tbody>
</table>

Spring Semester (17 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHA515</td>
<td>Pharmacy Seminar</td>
<td>1</td>
</tr>
<tr>
<td>PHA—</td>
<td>Professional Elective</td>
<td>1</td>
</tr>
<tr>
<td>PHA572</td>
<td>Professional Pharmacy Practice – Patient Care Experience</td>
<td>12</td>
</tr>
<tr>
<td>PHA510</td>
<td>U.S. Pharmacy Law &amp; Regulation</td>
<td>2</td>
</tr>
<tr>
<td>PHA513</td>
<td>Lebanese Pharmacy Law &amp; Regulation</td>
<td>1</td>
</tr>
</tbody>
</table>

A total of 6 credits of professional electives, as one-credit or two-credit courses, should be completed before graduation.

* Students interested in applying to the Pharm.D. Program should take PHA523 Clinical Pharmacokinetics (1 cr.) as a professional elective.

Professional Year IV

Pharm.D. Candidates Only

The fourth professional year of the Doctor of Pharmacy Program consists of seven four-week advanced practice experiences. The fourth professional year consists of four required experiences, one from each below:

1. Community
2. Hospital / Health System Pharmacy

3. Ambulatory Care / Critical Care area (cardiology or medical intensive care) [and three elective experiences]
4. Internal Medicine

Internal Medicine

Advanced Pharmacy Practice (21 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHA 660</td>
<td>Required Advanced Pharmacy Practice in Internal Medicine/Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>PHA 661</td>
<td>Required Advanced Pharmacy Practice in Ambulatory Care</td>
<td>3</td>
</tr>
<tr>
<td>PHA 662</td>
<td>Required Advanced Pharmacy Practice in Institutional (hospital / health system pharmacy)</td>
<td>3</td>
</tr>
<tr>
<td>PHA 663</td>
<td>Required Advanced Community Pharmacy Practice</td>
<td>3</td>
</tr>
<tr>
<td>PHA 650</td>
<td>Elective Advanced Pharmacy Practice Experience (Topic I)</td>
<td>3</td>
</tr>
<tr>
<td>PHA 650</td>
<td>Elective Advanced Pharmacy Practice Experience (Topic II)</td>
<td>3</td>
</tr>
<tr>
<td>PHA 650</td>
<td>Elective Advanced Pharmacy Practice Experience (Topic III)</td>
<td>3</td>
</tr>
</tbody>
</table>

A Pharmacy Project course (3 credits) may replace 1 elective Advanced Pharmacy Practice Experience

Students have to choose 3 different topics from the following:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacokinetics</td>
<td>3</td>
</tr>
<tr>
<td>Emergency Medicine</td>
<td>3</td>
</tr>
<tr>
<td>Ambulatory Care</td>
<td>3</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>3</td>
</tr>
<tr>
<td>Dermatology</td>
<td>3</td>
</tr>
<tr>
<td>Nephrology</td>
<td>3</td>
</tr>
<tr>
<td>Adult Oncology</td>
<td>3</td>
</tr>
<tr>
<td>Infectious Diseases</td>
<td>3</td>
</tr>
<tr>
<td>Neonatal Intensive care</td>
<td>3</td>
</tr>
<tr>
<td>OB/GYN</td>
<td>3</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>3</td>
</tr>
<tr>
<td>CCU</td>
<td>3</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>3</td>
</tr>
<tr>
<td>Medical Intensive Care</td>
<td>3</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>3</td>
</tr>
<tr>
<td>Pharmaceutical Industry</td>
<td>3</td>
</tr>
<tr>
<td>Neurology</td>
<td>3</td>
</tr>
<tr>
<td>Family Medicine</td>
<td>3</td>
</tr>
<tr>
<td>Pediatric Oncology</td>
<td>3</td>
</tr>
<tr>
<td>Teaching</td>
<td>3</td>
</tr>
<tr>
<td>Pharmaceutical Company</td>
<td>3</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>3</td>
</tr>
</tbody>
</table>

RULES AND REGULATIONS

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 for students affairs 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 School Admissions Committee, with the approval of the dean. The committee automatically rejects incomplete applications or if received after the above-mentioned deadline. Following the completion of the application process, an individual interview will be conducted with each applicant. Applicants will be evaluated based on different criteria such as GPA, interview, faculty evaluation, writing skills, recommendation letters, number of repeats, warning letters and others.

To be admitted into the professional phase of the program, students must complete all of 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, CHM314 and B10201.

In addition, to be eligible to apply to the professional program, students normally are allowed a maximum of three repeats of the same course or different courses, and should not have received any academic or disciplinary warning. Two warnings during the academic years will lead to dismissal from the School / not eligible to apply to the professional program. Furthermore, a student may, with approval of the School Academic Council chaired by the Dean, carry one grade of D, D+ or C- in one course in the pre-pharmacy program to the professional program provided student was not able to repeat course before fall of admission. Such grade must be removed in fall, spring or summer semesters of the following year. Failure to do so will prevent student from being promoted to the next higher year. Please be aware that courses in the professional program are offered sequentially as stated in the curriculum and on a yearly basis according to student standing.

Admission into the professional phase of the program is competitive. Meeting the minimum requirements does not guarantee acceptance.

A minimum grade of C or its equivalent in pre-pharmacy courses must be earned by students transferring from an institution other than LAU. Furthermore, transfer of professional pharmacy courses will be conducted according to ACPE guidelines; only professional pharmacy courses from the Accreditation Council for Pharmacy Education (ACPE) accredited programs are transferable. Major courses transferred will be included in calculating the GPA for admission.

Applicants holding a B.A. or a B.S. degree from the following Universities are exempted from taking the Liberal Arts Core (LAC) courses:

- AUB
- Balamand
- NDU
- Haigazian

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.”*1

The School of Pharmacy of the Lebanese American University is an equal opportunity institution and will not use the race, sex, religion or national origin of an applicant as criterion for admission into the program.

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 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
The School of Pharmacy

suspended for one year may be considered for readmission, after the school’s approval, and will be advised to repeat courses in which he/she received an F, D, D+ or C-, and may not carry more than 13 credits in a semester.

* This applies only for students who seek the Pharm.D. degree.

PROMOTION TO A HIGHER YEAR
To be promoted to a higher year in the professional program, a student must complete all courses of each year with grade of C or better before being allowed to enroll in any course in the higher year. All courses will be followed sequentially as stated in the curriculum. However, a student must have prior approval of the School Academic Council chaired by the Dean to be allowed to carry one grade of D, D+ or C- to a higher year. Such deficient grade must be removed within the following two semesters or summer of the higher year. Failure to remove this deficiency on time will result in denying promotion to the next higher year. A grade “F” will stop the student from being promoted to a higher year. Students must successfully complete all didactic courses of the program before they are allowed to enroll in any Pharmacy Practice Experiences (rotations).

In the first professional year, P1, students will not be able to register for PHA 397, 398 and 399 if they have not completed all P1 courses or if they have more than 2 courses with a grade below C. A grade “F” will stop the student from taking PPM or being promoted to P2.

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.

II-DOCTOR OF PHARMACY (PHARM.D.)

ADMISSION
Admission into the Pharm.D. Program takes place only in the fall semester. Applications should be obtained from the School of Pharmacy. All applicants must submit a completed application form to the School of Pharmacy no later than January 31 of the year of expected admission.

Admission into the Pharm.D. Program is a competitive process. The School Admissions Committee will evaluate applicants based on GPA, interview, number of courses repeated in the professional program, recommendation letters, faculty evaluation, warning letters and others. Two warnings during the academic years will lead to dismissal from the School or will not be eligible to apply to the Pharm.D program.

Only students who earned a B.S. in Pharmacy degree from LAU or an ACPE accredited university are eligible to apply. Furthermore, students who received the B.S. in Pharmacy degree two years prior to the year of expected admission are eligible to apply. Graduates from non-ACPE-accredited universities must start from pre-pharmacy or the first professional year (P1).

GRADUATING REQUIREMENTS
To graduate with a Pharm.D. degree, a student must have a minimum GPA of 2.00 and grades of C in all required courses.

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.
Corequisite: 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.

Corequisite: 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.

Corequisite: Pre-Professional Year I & 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, CHM 311, CHM312, CHM 313, and CHM314.
Corequisite: 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.
Corequisite: Pre-Professional Year II status.

**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.
Corequisite: 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 development of microbiological techniques.

Prerequisite: BIO201.
Corequisite: 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.

Prerequisites: CHM201, CHM312 and CHM314.
Corequisite: 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.

Prerequisites: CHM201, CHM312 and CHM314.
Corequisite: 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.
Corequisite: Professional Year I status.

**PHA313 Medicinal Chemistry II [3 cr.]**
This course is a continuation of Medicinal Chemistry I.

Prerequisite: PHA312.
Corequisite: Professional Year I status.

**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.

Corequisites: PHA315 and Professional Year I status.
The School of Pharmacy

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.
Corequisites: PHA314 and 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.
Corequisites: PHA317 and Professional Year I status.

PHA317 Dosage Forms II Laboratory [1 cr.]
This is a compounding laboratory taken concurrently with PHA316.
Prerequisite: PHA315.
Corequisites: PHA316 and 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.
Corequisite: 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.
Prerequisites: ENG202 and ENG203.
Corequisite: 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.
Corequisite: 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, pharmacokinetics, drug−drug interactions, and the adverse effects of various categories of drugs.
Prerequisite: PHA210.
Corequisites: PHA313 and Professional Year I status.

PHA333 Pharmacy Management [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.
Corequisite: Professional Year I status.

PHA421 Drug Information and Literature Evaluation [2 cr.]
This course covers the use of reference sources to retrieve, evaluate and disseminate information in pharmacy practice. Fundamentals of research design, methodology, and analysis in practicing evidence-based pharmacy are discussed.
Prerequisites: PHA330 and PHA205.
Corequisite: 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.
Corequisite: Professional Year II status.

PHA430 Pharmacology II [4 cr.]
This course is a continuation of PHA330.
Prerequisites: PHA210, PHA313, PHA330 and PHA211.
Corequisite: 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.
Corequisite: 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.

Prerequisites: PHA330, PHA430 and PHA422.
Corequisite: Professional Year II status.

**PHA510 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.

Corequisite: Professional Year III status.

**PHA513 Lebanese Pharmacy Law and Regulation [1 cr.]**
Course description: This course discusses the regulations of pharmacy practice in Lebanon including the requirements to become a licensed pharmacist, to establish a community pharmacy, to operate a hospital pharmacy, and to receive a license for manufacturing a drug or importing any substance that falls under its category. The course covers the registration process of any substance considered a drug at the Ministry of Public Health department, including its pricing regulation and profit allowance. It also sheds light on situations whereby a pharmacist can dispense, substitute a medication or make changes to the dosing regimen. Other topics discussed include the responsibilities and rights of pharmacy inspection/audit from the Lebanese Ministry of Public Health and any other regulatory body, and definition of felony or crime and determine its respective penalty measures. Finally, this course covers all the regulations related to establishing the Lebanese Order of Pharmacists, including its mission, goals, organization structure, executive board, committees, retirement plan, financial operations, elections, and inspection.

**PHA550 Introduction to Pharmacogenomics [1 cr.]**
This course covers the relationship of genetic individual variability to drug response.

Prerequisite: PHA430.
Corequisite: Professional Year III status.

**PHA557 Pharmacoeconomics [3 cr.]**
This course is an introduction to the role of pharmacoeconomics in the healthcare system, with emphasis on research outcomes. This course covers the application of pharmacoeconomic analysis in clinical practice.

Prerequisites: PHA333 and PHA421.
Corequisite: Professional Year III status.

**PHA560 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 parenteral 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.
Corequisite: 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.

**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.
The School of Pharmacy

PHA405 Pharmaceutical Parenterals [2 cr.]
This course covers pharmaceutical parenterals, and 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.

PHA523 Clinical Pharmacokinetics [1 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: PHA 422.
Corequisite: Professional Year III status.

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. Community pharmacy management approaches and styles, organizational principles, personnel, purchasing and inventory control, pricing, professional fees, community pharmacy services, and the Lebanese law are covered.
Prerequisites: PHA210, PHA313, PHA316, PHA322, PHA333, PHA320, PHA 330, PHA 340 and Professional Year I status.

PHA399 Pharmacy Practice Management II [2 cr.]
This course is a continuation of PHA398. It 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.
Prerequisites: PHA210, PHA313, PHA316, PHA322, PHA333, PHA320, PHA 330, PHA 340 and 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 member.

PHA441 Pharmacotherapeutics II [3 cr.]
This course focuses on endocrinologic and oto/ophthalmologic diseases, and women’s health.
Prerequisites: PHA210, PHA313, PHA316, PHA320, PHA397, PHA398 and PHA399.
Corequisites: PHA430 and 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.
Corequisites: PHA430 and 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, and PHA399.
Corequisite: Professional Year II status.

PHA444 Pharmacotherapeutics V [3 cr.]
This course focuses on infectious diseases.
The School of Pharmacy

Prerequisites: PHA210, PHA211, PHA313, PHA316, PHA320, PHA397, PHA398, PHA399 and PHA430.
Corequisite: Professional Year II status.

PHA445 Pharmacotherapeutics VI [3 cr.]
This course focuses on the hematological/oncologic, neurologic, genitourinary, and reproductive system diseases.
Prerequisites: PHA210, PHA313, PHA316, PHA320, PHA397, PHA398, PHA399 and PHA430.
Corequisite: 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.
Corequisites: 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.
Prerequisites: PHA340, PHA421, PHA422, PHA441, PHA442, PHA443, PHA444 and PHA445.
Corequisite: Professional Year III status.

PHA570 Professional Pharmacy Practice – Hospital/DIC Experience [6 cr.]
This course covers pharmacy practice in a hospital setting and at a drug information center. It 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.
Corequisite: Professional Year III status.

PHA571 Professional Pharmacy Practice – Community Experience [6 cr.]
This course covers the pharmacy practice in a community setting. It 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.
Corequisite: Professional Year III status.

PHA572 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.
Corequisite: Professional Year III 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. Selection of sites is checked upon by Chair of PP, Director of Experiential Education

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

PHA670–PHA673 (12 cr)
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.

Prerequisites: Bachelor of Science in Pharmacy and Professional Year IV status.

PHA679 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 the close mentoring from a clinical pharmacy faculty member. Furthermore, the students will provide pharmaceutical care to the patients and will gain the relevant knowledge, learning valuable information for their future practice.

For non-direct patient care experiences, the goals that the students should achieve are dependent on the elected experience. In general, all experiences are designed to allow students to gain further knowledge, and to develop the required skills and information for their future practice. Students are required to choose three topics, based on availability.

Prerequisite: Bachelor of Science in Pharmacy/Professional Year IV status.

PHA689 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.

SUPPORTING FACILITIES

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 FT-IR 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 system, 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), friabilator, 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 counselling, 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, counselling area desks, auxiliary medication labels, personal computers, a printer, a bar code reader, and pharmacy textbooks.
Faculty

SPRING 2011

Abboushi, Jenine - School of Arts and Sciences
Ph.D., Comparative Literature, Harvard University, 1996.

Abcarius, Jean-Marc - School of Architecture and Design

Abdallah, Eddie - School of Medicine
M.D., University of Michigan, 1993.
Surgical Oncology, UT MD Anderson, 2002.

Abdallah, Jad - School of Pharmacy

Abdel Baki, Randa - School of Architecture and Design

Abdo, Antoine - School of Arts and Sciences
Ph.D., Literature, Université Saint Joseph, 1986.

Abi Abdallah-Doumit, Myrna - School of Nursing

Abi Fares, Ghada - School of Business
M.B.A., Business Administration, American University of Beirut, 1993.

Abi Ghanem, Samer - School of Arts and Sciences
M.M.B., Money & Banking, American University of Beirut, 1999.

Abi Habib, Ralph - School of Arts and Sciences
Ph.D., Biochemistry and Molecular Biology, Wake Forest University, 2005.

Abi Nader, Elie - School of Medicine
M.D., American University of Beirut, 1978.
Anaesthesiology, Johns Hopkins Hospital, 1982.
Cardiothoracic Anaesthesia, Cleveland Clinic, 1982.

Abi Nader, Khalil - School of Medicine
M.D., American University of Beirut, 2003.
Obstetrics & Gynaecology, American University of Beirut, 2007.
Maternal Foetal Medicine, University College London Hospitals, 2009.

Abi Raad, Vanda - School of Medicine
M.D., Saint Joseph University, 1989.
Anaesthesiology, American University of Beirut, 1992.
Cardiovascular Anaesthesia, American University of Beirut, 1993.
Regional Anaesthesia, Hopital la Conception France, 2006.

Abillama, Fayez Francois - School of Medicine
M.D., University of Algiers, 1986.
ICU, University Of Paris V Rene Descartes, 1990.

Abillamah, Walid - School of Engineering

Abosedra, Salaheddin - School of Business
Ph.D., Economics, University of Colorado, 1984.

Abou Antoun, Thamara - School of Pharmacy
Ph.D., Molecular Medicine, The George Washington University, 2008.

Abou Arbid, Silia - School of Architecture and Design

Abou Rjeily, Chadi - School of Engineering

Abu Khzam, Faisal - School of Arts and Sciences

Abu-Safe, Husam - School of Arts and Sciences
Ph.D., Physics, University of Arkansas, 2002.

Abu Teen, Samir - School of Arts and Sciences
M.A., English Literature, American University of Beirut, 1979.

Acra, Usama - School of Arts and Sciences
M.A., Communication, Marquette University, 1982.

Aercke, Kristiaan - School of Arts and Sciences
Ph.D., Comparative Literature, The University of Georgia, 1988.
Aghacy, Samira - School of Arts and Sciences

Ahdab, Rechdi - School of Medicine
M.D., Lebanese University, 2000.
Neurology, Lebanese University, 2005.

Aintablian, Sebouh - School of Business

Akle, Barbar - School of Engineering
Ph.D., Mechanical Engineering, Virginia Polytechnic Institute and State University, 2005.

Alayli, Rajaa - School of Medicine
M.D., American University of Beirut, 1993.
Internal Medicine, Yale University, 1996.
Gastroenterology, Yale University, 1999.

Amin, Tamer - School of Arts and Sciences
Ph.D., Psychology, Clark University, 2002.

Ammar, Diala - School of Arts and Sciences
Ph.D., Motor Development, Texas A & M University, 2006.

Ammous, Saifedean - School of Business

Andraos, Albert - School of Business

Aouad-Barakat, Daisy - School of Medicine
Anaesthesiology, American University of Beirut, 1976.

Ariss, Rima - School of Business
Ph.D., Finance, University of Wales, Cardiff, 2004.

Armache, Jalal - School of Business
Ph.D., Human Resources Development, Barry University, 1997.

Arnaout, Jean-Paul - School of Engineering
Ph.D., Management & Systems Engineering, Old Dominion University, 2006.

Asfour, Hani - School of Architecture and Design

Assad, Tony - School of Business

Assaf, Nadra - School of Arts and Sciences

Assaker, Guy - School of Business

Assi, Chahine - School of Medicine
M.D., Université Claude Bernard Lyon, 1992
Orthopaedic Surgery, Faculté de Medecine Montpellier, 1999

Assouad, Nada - School of Architecture and Design
Ph.D., Environmental Design, Université de Montreal, 2008.

Agkathidis, Asterios - School of Architecture and Design

Awdeh, Adnan - School of Medicine
M.D., American University of Beirut, 1976.
General Surgery, American University of Beirut, 1980.

Awwad, Rita - School of Engineering
Ph.D., Civil Engineering, The University of Michigan (Rackham Graduate School), 2010.

Ayayash-Abdo, Huda - School of Arts and Sciences

Azar, Danielle - School of Arts and Sciences

Azzi, Liz - School of Architecture and Design

Azzi, Reine - School of Arts and Sciences

Bacha, Nahla - School of Arts and Sciences
Faculty

Badr, Elie - School of Engineering
Ph.D., Mechanical Engineering, The University of Tulsa, 1994.

Badran, Dany - School of Arts and Sciences

Bahous, Maria - School of Architecture and Design

Bahous, Rima - School of Arts and Sciences

Bahous, Solal - School of Medicine
M.D., Lebanese University, 1995.
  Internal Medicine, Lebanese University, 1997.
  Nephrology, Lebanese University, 2000.

Balaa, Luma - School of Arts and Sciences
Ph.D., English, University of Strathclyde, 1993.

Barakat, Daisy - School of Medicine
  Anaesthesiology, American University of Beirut, 1976.

Barakat, Hanan - School of Medicine
M.D., Saint Joseph University, 1996

Baroudi, Sami - School of Arts and Sciences
Ph.D., Political Science, Indiana University, 1992.

Baroudy, George - School of Arts and Sciences
Ph.D., Endocrinology, University of Surrey, 1979.

Bazzi, Tarif - School of Arts and Sciences
Ph.D., Arabic Literature, American University of Beirut, 1991.

Behmardi, Vahid - School of Arts and Sciences
Ph.D., Arabic Literature, University of Cambridge, 1991.

Ben Sita, Bernard - School of Business
Ph.D., Economics & Business Administration, Swedish School of Economics & Business Administration, 2005.

Beyrouti, Nouri - School of Business
Ph.D., Graphic Communication Management & Technology, New York University, 1989.

Boghrarian, Keghouchie - School of Business
Ph.D., Business Administration, Université Montesquieu Bordeaux IV, 2009.

Boghrarian, Krikoris - School of Arts and Sciences
Ph.D., Medical Sciences, American University of Beirut, 1976.

Bohsali, Rached - School of Architecture and Design

Boumosleh, Anwar - School of Business
Ph.D., Finance, University of Alabama, 2005.

Bouse, Derek - School of Arts and Sciences

Chamelian, Rania - School of Business
Ph.D., Hospitality & Food Management, University of Surrey, 2010.

Chamoun, Chaouki - School of Architecture and Design
D.E.S., Painting, Lebanese University, 1972.

Chamoun, Rachid - School of Architecture and Design
Ph.D., Urbanism By Ecological Landscape, Union Institute and University, 2005.

Chatila, Evelyn - School of Arts and Sciences

School of Arts and Sciences

Chatila, Jean - School of Engineering
Ph.D., Civil Engineering, Université d’Ottawa, 1997.

Dabbous, Yasmine - School of Arts and Sciences
Ph.D., Mass Communication, Louisiana State University, 2010.

Dabbous-Sensenig, Dima - School of Arts and Sciences
Ph.D., Broadcast Regulation, Sheffield Hallam University, 2003.
Faculty

Daccache, Maroun - School of Architecture and Design

Daccache, Nidal - School of Arts and Sciences
Ph.D., Arabic Literature, Lebanese University, 2004.

Dagher, Grace - School of Business
Ph.D., Business Administration, the University of Texas Pan American, 2008.

Dah, Abdallah - School of Business

Daher, Costantine - School of Arts and Sciences
Ph.D., Biology, University of Surrey, 1998.

Daif, Rachid - School of Arts and Sciences
Doctorat, Islamic Studies, Université de Paris Ill Sorbonne Nouvelle, 1974.

Dakakni, Deema - School of Arts and Sciences

Darwish, Orpha - School of Arts and Sciences
M.S., Education, Southern Illinois University, 1968.

Dasouki, Suhail - School of Arts and Sciences

Deeb, Marie - School of Medicine

Diab, Nuwar - School of Arts and Sciences

Diab, Rula - School of Arts and Sciences

Dibeh, Ghassan - School of Business
Ph.D., Economics, University of Texas at Austin, 1994.

Dimassi, Hani - School of Pharmacy

Djoundourian, Salpie - School of Business
Ph.D., Economics, Louisiana State University, 1993.

Dodigovic, Marina - School of Arts and Sciences

Chatila, EvDodigovic, Marina - School of Arts and Sciences

Doueihi, Noha - School of Medicine
M.D., Saint Joseph University, 1976
Pathology, Universite Pierre Et Marie Curie - Paris VI, 1980.

Dunya, Ibrahim - School of Medicine
Paediatric Ophthalmology and Strabismus, New England Medical Center, Tufts University, 1994.

Dunya, Malko - School of Medicine
M.D., American University of Beirut, 1980.
Urology, American University of Beirut, 1985.

Eckhert, Lynn - School of Medicine
M.D., Pediatrics, State University of New York, Buffalo, 1970.
Dr. PH, Johns Hopkins, 1980.

Eido, Dana - School of Arts and Sciences

El Asmar, Nadia - School of Medicine
M.D., Saint Joseph University, 1989.
Primary Care, Saint Joseph University, 2001.

El Hakim-Tannous, Zeina - School of Medicine
M.D., American University of Beirut, 1995
Dermatology, American University of Beirut, 1999

El Hussari, Ibrahim - School of Arts and Sciences
Ph.D, Literature, Kensington University, 1982.

El Khoury, Ghada - School of Pharmacy

El Khoury, Joe - School of Medicine
M.D., Saint Joseph University, 1990.
Radiology, Saint Joseph University, 1994.
Faculty

Vascular and Interventional Radiology, Pitié-Salpêtrière University Hospital, 1997.

El Khoury, John - School of Engineering
Ph.D., Civil Engineering, Virginia Polytechnic Institute, 2005.

El Ramy, Julie - School of Medicine
M.D., Lebanese University, 1998.
Radiology, Lebanese University, 2003.
Paediatric Radiology and Cardiac CT, Charles Nicole Hospital France, 2004.
Cardiac MRI, Gasthuisberg Hospital, 2006.

El Sibai, Mirvat - School of Arts and Sciences
Ph.D., Molecular Pharmacology, Yeshiva University, 2007.

Farahpour, Behnam - School of Architecture and Design
M.Arch, Architecture, University of California, Berkeley, 2009

Farhat, Hussein - School of Medicine
M.D., Liege State University Belgium, 1986.
Laboratory Medicine, Liege State University, 1992.

Farjallah, Tony - School of Arts and Sciences
M.A., Sciences de L’Education, Université de Montreal, 1996.

Farra, Anna - School of Medicine
M.D., University of Lyon France, 1975.
Gastroenterology, University of Lyon France, 1977.

Finlay, Jim L. - School of Business
Ph.D., Marketing, Louisiana Tech University, 1984.

Fouladkar, Assad - School of Arts and Sciences
M.S., Film, Boston University, 1989.

Garabedian, Sami - School of Arts and Sciences
M.S., Athletic Administration & Coaching, University of Miami, 1983.

Ghajar, Raymond - School of Engineering

Ghanam Nemr, Rita - School of Medicine
M.D., Saint Joseph University, 1992.
Faculty

Endocrinology, Saint Joseph University, 1995.


Ghattas, Renée - School of Business

Ghosn, Irma-Kaarina - School of Arts and Sciences

Glissmann, Pascal - School of Architecture and Design

Greulich, Evan - School of Arts and Sciences

Habchi, Wassim - School of Engineering
Ph.D., Mechanical Engineering, Institut National des Sciences Appliquées de Lyon (INSA), 2008.

Habib-Tofailli, Mary - School of Business

Habre, Paula - School of Arts and Sciences

Habre, Samer - School of Arts and Sciences
Ph.D., Mathematics, Syracuse University, 1991.

Haddad, Elie - School of Architecture and Design

Hage, Nermine - School of Arts and Sciences

Haidar, Mona - School of Medicine
M.D., American University of Beirut, 2003.


Hajjar, Bughdana - School of Arts and Sciences

Halawi, Leila - School of Business

Hamalian, Carole - School of Medicine

Pathology, Rene Descartes University, 2006.

Hamdan, May - School of Arts and Sciences
Ph.D., Mathematics, Syracuse University, 1994.

Hammoud, Hassan - School of Arts and Sciences
Ph.D., Social Welfare, Case Western Reserve University, 1981.

Haraty, Nableh - School of Arts and Sciences

Haraty, Ramzi - School of Arts and Sciences
Ph.D., Computer Science, North Dakota State University, 1992.

Harfouche, Elie - School of Architecture and Design

Harfoushe, Abdel Majid - School of Business
B.A., Business Management, University of Maryland, 1981.

C.P.A., Accounting, Maryland State Board of Public Accountancy, 1984.

Harik, Ramy - School of Engineering

Harmanani, Haidar - School of Arts and Sciences
Ph.D., Computer Engineering, Case Western Reserve University, 1994.

Harmoush, Layla - School of Arts and Sciences

Hashwa, Fouad - School of Arts and Sciences
Ph.D., Microbiology, University of Gottingen, 1972.

Hijazi, Abeer - School of Pharmacy

Hijazi, Zeinat - School of Medicine
M.D., Paediatrics, University of Cairo, 1973.

Hirbli, Kamal - School of Medicine
Endocrinology, Paris Hotel Dieu Hospital, 1981.

Hoffart, Nancy - School of Nursing  
Ph.D., Nursing, The University of Virginia, 1989.

Houri, Ahmad - School of Arts and Sciences  

Ibrahim, Raghida - School of Arts and Sciences  
M.A., Comparative Literature, Lebanese American University, 2008.

Issa, Camille - School of Engineering  
Ph.D., Structural Engineering, Virginia Polytechnic Institute & State University, 1985.

Issa, Jimmy - School of Engineering  
Ph.D., Mechanical Engineering, Michigan State University, 2008.

Jabbour, Mona - School of Architecture and Design  
M.F.A., Painting, Pratt Institute, 1990.

Jabbar, Joseph, President – School of Arts and Sciences  
Ph.D., Political Science, Catholic University of America, 1970.

Jeha, Mimi - School of Arts and Sciences  
Ph.D., Higher Education Administration, North Texas State University, 1978.

Jureidini, Farid - School of Architecture and Design  

Jureidini, Ray - School of Arts and Sciences  

Kabbani, Ahmad - School of Arts and Sciences  
Ph.D., Chemistry, University of California-Davis, 1979.

Kabbbara, Wissam - School of Pharmacy  
Pharm.D., Pharmacy, Lebanese American University, 2006.

Kahil, Abdallah - School of Architecture and Design  

Kaloustian, Garene - School of Arts and Sciences  
Ph.D., Child Development & Family Studies, Purdue University, 2008.

Kaloyeros, Loulwa - School of Arts and Sciences  
M.S., Developmental Psychology, University of Manchester, 1987.

Kanbar, Roy - School of Pharmacy  

Karam, Albert - School of Medicine  
M.D., Saint Joseph University, 1977.

Karam, Gebran - School of Engineering  
Ph.D., Materials & Structures, Massachusetts Institute of Technology, 1994.

Karaouï, Lamis - School of Pharmacy  
Pharm.D., Pharmacy, Lebanese American University, 2005.

Karkoulian, Silva - School of Business  

Kassar, Abdel Nasser - School of Business  
Ph.D., Mathematics, University of South Western Louisiana, 1991.

Khachan, Victor - School of Arts and Sciences  

Khairallah, Maya - School of Medicine  
Ph.D., Experimental Medicine, McGill University, 2006.

Khalaf, Roy - School of Arts and Sciences  

Khalife, Joseph - School of Arts and Sciences  

Khalifeh, Joseph - School of Arts and Sciences  

Khodr, Bilal – School of Medicine  
M.D., American University of Beirut, 1993.

Khoury, Alfred - School of Medicine  
M.D., Lebanese University, 1990.

Orthopaedic Surgery, Lebanese University, 1996.
Khoury, Michel - School of Engineering  
Ph.D., Mechanical Engineering, Lehigh University, 2004.

Khoury, Tarek - School of Architecture and Design  

Khuri, Richard - School of Arts and Sciences  
Ph.D., Philosophy, University of California, 1986.

Kilany, Hala - School of Medicine  
M.D., Lebanese University, 1993.  
Internal Medicine, Lebanese University, 1995.  
Nephrology, Lebanese University, 1998.

Kiprianos, Joseph - School of Architecture and Design  

Knia, Mona - School of Arts and Sciences  

Koniski, Marie-Louis Dalal - School of Medicine  
M.D., Saint Joseph University, 1976.  
Pulmonary, Henri Mondor Hospital, 1980.

Korab-Karpowicz, Wlodzimierz Julian - School of Arts and Sciences  

Korfali, Samira - School of Arts and Sciences  
Ph.D., Chemistry, University of Bradford, 1999.

Kouati, Issam - School of Business  
Ph.D., Mechanical Engineering, The University of Birmingham, 1990.

Ladki, Said - School of Business  

Lahoud, Antoine - School of Architecture and Design  
D.E.S.S., Restauration et Conservation, Lebanese University, 2000.  

Lahoud, Bassam - School of Architecture and Design  

Maalouf, Adoni - School of Arts and Sciences  

Maalouf, Ruth - School of Architecture and Design  

Maamari, Bassem - School of Business  
Ph.D., Business Administration, Grenoble Ecole de Management, 2010.

Mahfoud, Daniel - School of Medicine  
M.D., Saint Joseph University, 1990.  
Radiology, Université Rene Descartes, 1995.

Majdalani, Michel - School of Business  
M.S., Electrical Engineering, Columbia University, 1983.

Majdalani, Mona C. - School of Arts and Sciences  
Ph.D., Curriculum and Instruction, Texas A&M University, 1993.

Makarem, Wassilia - School of Arts and Sciences  
M.A., English Literature, American University of Beirut, 1984.

Malik, Habib - School of Arts and Sciences  

Maluf, Ramez - School of Arts and Sciences  

Mansour, Cedar - School of Business  
J.D., Law, West Virginia University, 1991.

Mansour, Nashat - School of Arts and Sciences  
Ph.D., Computer Science, Syracuse University, 1992.

Marrouch, Walid - School of Business  

Marroum, Marianne - School of Arts and Sciences  
Ph.D., Comparative Literature, Purdue University, 1993.

Matar, Maroun; School of Medicine  
M.D., Lebanese University, 1996.
Faculty

McGill, John - School of Business
Ph.D., Management Science, University of Massachusetts, 1992.

Messarra, Leila - School of Business
Ed.D., Management, University of Leicester, 2007.

Mikdashi, Tarek - School of Business
Ph.D., Education (Mathematics), The University of Michigan, 1979.

Milane, Aline - School of Pharmacy
Ph.D., Pharmacology, Université Paris Sud 11, 2009.

Mohsen, Nadim - School of Arts and Sciences

Mohsen, Raed - School of Arts and Sciences

Mokhbat, Jacques - School of Medicine
M.D., Saint Joseph University, 1977.

Mouawad, Ray - School of Arts and Sciences

Moubarak, Walid - School of Arts and Sciences
Ph.D., Political Science, Indiana University, 1979.

Moujaes, Samar - School of Arts and Sciences
Ph.D., Arabic Studies, Université de Paris-Sorbonne, 1997.

Mourad, Azzam - School of Arts and Sciences
Ph.D., Electrical and Computer Engineering, Concordia University, 2009.

Mroueh, Mohammad - School of Pharmacy

Musallam, Munjid - School of Arts and Sciences
M.S., Computer Science, University of Texas at Austin, 1989.

Na’was, Tarek - School of Arts and Sciences
Ph.D., Medical Sciences, American University of Beirut, 1983.

Naaman, Aida - School of Arts and Sciences

Nabhani, Mona - School of Arts and Sciences

Naja, Hassan - School of Business
M.B.A., Aviation, Embry-Riddle Aeronautical University, 1981.

Nakad, Zahi - School of Engineering
Ph.D., Computer Engineering, Virginia Polytechnic Institute & State University, 2003.

Naous, Ghada - School of Arts and Sciences
M.S., Chemistry, American University of Beirut, 1996.

Nasr, George - School of Engineering

Nasrallah, Therese - School of Arts and Sciences
M.S., English Language & Literature, Mankato State University, 1987.

Nassar, Lina - School of Arts and Sciences
Ph.D., Theater Studies, Université de la Sorbonne Nouvelle, 1995.

Nasser, Rima - School of Medicine
M.D., Duke University, 1996.

Nasser, Selim - School of Medicine
M.D., Saint Joseph University, 1992.


Nasser, Soumana - School of Pharmacy
Pharm.D., Pharmacy, University of Rhode Island, 2001.

Nassif, Jeannette - School of Pharmacy

Nauffal, Diane Issa - School of Arts and Sciences
Ph.D., Education Administration & Policy, University of Birmingham, 2005.
Faculty

Nour, Chadi - School of Arts and Sciences

Obeid, Samir - School of Arts and Sciences

Ouaiss, Iyad - School of Engineering
  Ph.D., Computer Engineering, University of Cincinnati, 2002.

Ouaiss, Makram - School of Arts and Sciences
  Ph.D., Computer Engineering, University of Cincinnati, 2009.

Oueini, Ahmad - School of Arts and Sciences

Papazian, Vatche - School of Architecture and Design

Prescott-Decie, Brian - School of Arts and Sciences

Raad, Elias - School of Business

Rahme, Suraya - School of Arts and Sciences
  M.A., TESOL, University of New South Wales, 2005.

Ramadan, Wijdan - School of Pharmacy

Ramia, Elsy - School of Pharmacy
  Pharm.D., Pharmacy, Lebanese American University, 2009.

Reda, Ayman - School of Business
  Ph.D., Economics, Michigan State University, 2005.

Riahi, Najib - School of Medicine
  M.D., American University of Beirut, 1986.
    Internal Medicine, Mount Sinai Medical Center, 1991.

  Neurology, University Hospitals of Cleveland, 1994.
    Epilepsy, Clinical Neurophysiology, Cleveland Clinics Foundation, 1996.

Rizk, Hikmat - School of Arts and Sciences
  M.D., Surgery, University of Heidelberg, 1974.

Rizk-Jamati, Sandra - School of Arts and Sciences
  Ph.D., Biology, University of Glasgow, 2000.

Rizk, Tamina; School of Medicine

Romanos, Antoine - School of Architecture and Design

Rowayheb, Marwan - School of Arts and Sciences

Saab, Nada - School of Arts and Sciences

Saab, Samer - School of Engineering

Saab, Yolande - School of Pharmacy
  Ph.D., Pharmacy, Brighton University, 2004.

Saad, Aline - School of Pharmacy

Sadaka, George - School of Arts and Sciences
  M.A., English Literature, American University of Beirut, 2002.

Salame, Imad - School of Arts and Sciences
  Ph.D., Political Science, Wayne State University, 2003.

Salem, Elise - School of Arts and Sciences

Salloukh, Bassel - School of Arts and Sciences
  Ph.D., Political Science, McGill University, 2000.

Salman, Nabil - School of Arts and Sciences
  B.A., Business Administration, Central State University, 1980.
    B.A., English, Central State University, 1970.
Faculty

Samaha, Roula - School of Medicine
M.D., American University of Beirut, 1991.
Internal Medicine, American University of Beirut, 1994.
Infectious Diseases, MD Anderson Cancer Centre, 1997.

Samia, Elie - School of Arts and Sciences
M.A., Political Science, American University in Cairo, 1989.

Sanchez-Ruiz, Maria-Jose - School of Arts and Sciences

Sarouphim, Ketty - School of Arts and Sciences

Sbaiti, Hanan - School of Arts and Sciences

Semaan, Mars - School of Arts and Sciences
Ph.D., Physics, Texas Christian University, 1982.

Serhal, Wassim - School of Medicine

Sfeir, Abdallah - School of Engineering
Ph.D., Mechanical Engineering, The University of California, 1969.

Shahin, Wassim - School of Business
Ph.D., Economics, Indiana University, 1986.

Shahine, Mona - School of Arts and Sciences
M.A., Education, American University of Beirut, 1996.

Shami, Samira Anais - School of Arts and Sciences

Sharafeddine, Sanaa - School of Arts and Sciences
Ph.D., Electrical Engineering, Munich University of Technology, 2005.

Sheikh Taha, Marwan - School of Pharmacy
Pharm.D., Pharmacy, Lebanese American University, 1999.

Sholy, Lydia - School of Pharmacy
Pharm.D., Pharmacy, Creighton University, 1991.

Skulte-Ouais, Jennifer - School of Arts and Sciences
Ph.D., Government & Politics, University of Maryland, 2005.

Sreih, Josiane - School of Business
Ph.D., Management, Université de Paris, 1996.

Srouji, Hanibal - School of Architecture and Design

Taa, Yasmine - School of Architecture and Design

Takah, Paul - School of Engineering
Ph.D., Structural Engineering, Northwestern University, 1990.

Tabbara, Mazen - School of Engineering
Ph.D., Structural Engineering, Northwestern University, 1990.

Takche, Jean - School of Arts and Sciences
Ph.D., Mathematics, Pennsylvania State University, 1984.

Tannous, Zeina - School of Medicine
M.D., American University of Beirut, 1995
Dermatology, American University of Beirut, 1999

Tarsha, Walid - School of Medicine
M.D., Saint Joseph University, 1979.
Cardiology, Hoptal Tenon France, 1983.

Toukan, Sima - School of Arts and Sciences
Ph.D., Medical Science, University of Newcastle Upon Tyne, 2003.

Toukan, Amjad - School of Business
Ph.D., Economics, University of California, 2007.

Touma, Rony - School of Arts and Sciences
Ph.D., Applied Mathematics, University of Montreal, 2005.

Touma, Walid - School of Business
Ph.D., Computer Engineering, The University of Texas at Austin, 1992.
Faculty

Vassilenko, Larissa - School of Arts and Sciences

Vitale, Edward - School of Business
Ph.D., Marketing, University of IOWA, 1973.

Wakim, Gerard - School of Medicine
M.D., Saint Joseph University, 1977.

Wex, Brigitte - School of Arts and Sciences
Ph.D., Photochemical Sciences, Bowling Green State University, 2005.

Yammnine, Joseph - School of Medicine
M.D., Saint Joseph University, 1974.
Pulmonary, Centre Hospitalier Intercommunal de Créteil, 1977.

Yusuf Karameh, Amy - School of Arts and Sciences

Zakka, Janine - School of Business

Zalloua, Pierre - School of Medicine
Ph.D., Molecular & Cellular Biology, University of California, 1996.

Zeaiter, Hussein - School of Business

Zebian, Samar - School of Arts and Sciences

Zeeni, Nadine - School of Arts and Sciences

Zeenny, Rony - School of Pharmacy
Pharm.D., Pharmacy, Lebanese American University, 2005.

Zeineh, Salim - School of Medicine
M.D., American University of Beirut, 1977.
Urology, American University of Beirut, 1982.

Zeitouni, Latif - School of Arts and Sciences
Ph.D., Semiotics, Université d’Aix Marseille I, 1985.

Zouein, Pierette - School of Engineering
Ph.D., Civil Engineering, The University of Michigan, 1996.

Zreik, Tony - School of Medicine
M.D., American University of Beirut, 1986.
Obstetrics & Gynaecology, Yale University, 1994.
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

Cornelius B. Houk  

Marie Sabri  
1967–1969 (Acting)

William H. Schechter  
1969–1973

Albert Y. Badre  
1973–1982

Riyad F. Nassar  
1982–2004

**PRESIDENT AND ADMINISTRATIVE OFFICERS**

**PRESIDENT**

Joseph G. Jabbra, Ph.D.  
President

**UNIVERSITY OFFICERS**

Abdallah Sfeir, Ph.D.  
Provost

Elise Salem, Ph.D.  
Vice President for Student Development & Enrollment Management

Cedar Mansour, J.D.  
Vice President, General Counsel and Special Assistant to the President

Emile Lamah, B.S., C.P.A.  
Vice President for Finance

Richard Rumsey, M.Ed.  
Vice President for University Advancement

Roy Majdalani, B.E., M.B.A.  
Vice President for Human Resources and University Services

Philippe Frossard, Ph.D.  
Dean of the School of Arts and Sciences, Beirut

Said El-Fakhani, Ph.D.  
Dean of the School of Business, Beirut

George Nasr, Ph.D.  
Dean of the School of Engineering

Lynn Eckert, M.D.  
Interim Dean of the School of Medicine

Pierre Zalloua, Ph.D.  
Interim Dean of the School of Pharmacy

Nancy Hoffart, Ph.D.  
Founding Dean of the School of Nursing
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Elie Badr, Ph.D.
Assistant Provost for Academic Programs
Interim Dean of the School of Architecture & Design

Sami Baroudi, Ph.D.
Assistant Provost for Faculty Affairs

Raed Mohsen, Ph.D.
Dean of Students, Beirut

Mars Semaan, Ph.D.
Dean of Students, Byblos

George Hamouche, M.S.
Assistant Vice President for Facilities Management

Sonia Hajjar, Ph.D.
Assistant Vice President for Finance / Budget & Grants

Charles Abu Rjeily, Licence,
Assistant Vice President for Finance / University Comptroller

Peggy Hanna, M.B.A.
Assistant Vice President for Marketing and Communications

Abdo Ghie, M.A.
Assistant Vice President for Enrollment Management

Camille Abou-Nasr, B.E.
Assistant Vice President for IT

Nassib Nasr, M.P.H.
Assistant Vice President for Development, Middle East and Europe

Ahmad Kabbani, Ph.D.
Faculty Senate Chair

Camille Issa, Ph.D.
Faculty Senate Vice Chair

Brian Prescott-Decie, M.A.
Faculty Senate Secretary

ACADEMIC OFFICERS

SCHOOL OF ARCHITECTURE & DESIGN

Interim Dean
Elie Badr, Ph.D.

Assistant Dean
Elie Haddad, Ph.D.

Chairs
Maroun Daccache, Ph.D.
Randa Abdel Baki, M.F.A.
Rached Bohsali, D.E.A.A.

Associate Chairs
Tarek Khoury, M.F.A.
Farid Jureidini, B.Arch.

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Assistant Dean
Nashat Mansour, Ph.D., Beirut
Nahla Bacha, Ph.D., Byblos

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Ahmad Kabbani, Ph.D., Natural Sciences
Huda Abdo, Ed.D., Social Sciences
Iman Osta, Ph.D., Education
Samer Habre, Ph.D., Computer Science and Mathematics
Mona Knio, Ph.D., Arts and Communication

Byblos
Costantine Daher, Ph.D., Natural Sciences
Haidar Harmanani, Ph.D., Computer Science and Mathematics
Habib Malek, Ph.D., Humanities and Social Sciences
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Dean
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Assistant Dean
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Salpie Djoundourian, Ph.D., Byblos

Chairs

Beirut
John McGill, Ph.D., Management, Marketing, MIS, International Business & Family Entrepreneurship
Said Ladki, Ph.D., Hospitality Management & Accounting
Abdallah Dah, Ph.D., Economics & Finance

Byblos
Elias Raad, Ph.D., Business Studies and Coordinator of the Executive Master of Business Administration Program
Ghassan Dibeh, Ph.D., Economics

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George E. Nasr, Ph.D.

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Mazen Tabbara, Ph.D.

Chairs

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Jean Chatila, Ph.D., Civil Engineering
Pierrette Zouein, Ph.D., Mechanical & Industrial Engineering

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Interim Dean
Pierre Zalloua, Ph.D.

Associate Dean
Yolande Saab, Ph.D., Academic Affairs

Assistant Dean
Lydia Sholy, Pharm.D.

Chairs
Rony Zeenny, Pharm.D., Director, Experiential Education
Aline Saad, Pharm.D., Pharmacy Practice
Roy Kanbar, Ph.D., Pharmaceutical Sciences

SCHOOL OF MEDICINE

Interim Dean
Lynn Eckert, M.D.

Assistant Deans
Pierre Zalloua, Ph.D., Director of the Genomics and Proteomic Lab
Zeinat Hijazi, M.D., Medical Education

SCHOOL OF NURSING

Founding Dean
Nancy Hoffart, Ph.D.

Assistant Deans
Myrna Doumit, Ph.D.

INSTITUTIONAL RESEARCH & ASSESSMENT
Diane Nauffal, Ph.D., Director

UNIVERSITY ENTERPRISE OFFICE
Walid Touma, Ph.D., Director

INSTITUTE FOR WOMEN’S STUDIES IN THE ARAB WORLD
Dima Dabbous-Sensenig, Ph.D., Director

LIBRARIES
Cendrella Habre, M.S., Director, Beirut
Joseph Hage, M.A., Acting Director, Byblos
Presidents and Administrative Officers

**STUDENT DEVELOPMENT**

**Dean of Students**
- Raed Mohsen, Ph.D., Beirut
- Mars Semaan, Ph.D., Byblos

**Athletics**
- Sami Garabedian, M.S., Director, Beirut
- Joe Moujaes, B.E., Director, Byblos

**Residence Hall**
- Hiam Musharrafieh, M.A., Supervisor, Beirut
- Suzy Saba, T.S., Supervisor, Byblos

**Enrollment Management**
- Abdo Ghie, M.A., Assistant Vice President for Enrollment Management

**Admissions**
- Nada Badran, M.S., Director, Beirut
- Michel Najjar, M.S., Director, Byblos

**Financial Aid & Scholarships**
- Samir Obeid, M.S., Director, Beirut
- Ghada Abi Fares, M.B.A., Director, Byblos

**Registrar**
- Vatche Papazian, M.S., Registrar, Beirut
- Fouad Salibi, B.A., Registrar, Byblos

**Outreach & Civic Engagement**
- Elie Samia, M.A., Executive Director

**CONTINUING EDUCATION PROGRAM & 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

**FINANCE OFFICERS**

**Budget & Financial Planning**
- Sonia Hajjar, Ph.D., Assistant Vice President for Finance / Budget & Grants

**Grants & Contracts**
- Sonia Hajjar, M.B.A., Assistant Vice President for Finance / Budget & Grants

**Comptroller**
- Charles Abu Rjeily, Licence, Assistant Vice President for Finance /University Comptroller

**Business Office**
- Naji Medlej, D.E.A., Comptroller, Beirut
- Michel Chahine, M.S., Comptroller, Byblos

**HUMAN RESOURCES & UNIVERSITY SERVICES OFFICERS**

**Human Resources**
- Nabil Semaan, M.S., Director, Beirut
- Joseph Michael, D.G.E.S., Director, Byblos

**Facilities Management**
- George Hamouche, M.S., Assistant Vice President for Facilities Management
- Shaheen Bou Jaoude, B.E., Director, Project Management and Contract Administration
- Joseph Shebaya, D.I., Director, Planning and Renovations
- Wissam Mansour, B.E., Director, Campus Operations and Maintenance, Byblos

**Information Technology**
- Camille Abou-Nasr, B.E., Assistant Vice President for IT
- Roula Matta Hage, D.I., Director of IT Applications and Solutions
- Nicolas Majdalani, License, Director, IT Infrastructure and Support
- Brigitte Baroudy, B.S., Director, IT Security
Presidents and Administrative Officers

**Business Services**
Salim Chehab, B.E., Executive Director of Business Services
Jassem Othman, B.E., Director of Auxiliary Services
Jean Rizk, M.B.A., Director of Supply
Nehmat Aoun, B.S., Director of Hospitality Services
Ghassan Atwi, B.S., Director of Purchasing, Beirut
Antoine Faris, M.S., Director of Purchasing, Byblos

**Protection**
Ahmad Hassouna, Director of Protection

**UNIVERSITY ADVANCEMENT OFFICERS**
Peggy Hanna, M.B.A., Assistant Vice President for Marketing and Communications
Nassib Nasr, M.P.H., Assistant Vice President for Development, Middle East and Europe
Christian Oussi, M.A., Executive Director of Public Relations
Abdallah Al Khal, M.B.A., Director of Alumni Relations
Amal Abdel Massih, B.S., Director of Advancement Services

**INTERNAL AUDIT OFFICE**
Internal Audit
Khaled Abul-Husn, M.B.A., C.P.A., Director
Tuition fees for the academic year 2011 - 2012

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>UNDERGRADUATE</th>
<th>Per Credit rate</th>
<th>PROGRAM UNDERGRADUATE</th>
<th>Per Credit rate</th>
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<tr>
<td>Undergraduate programs</td>
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<td>Teaching Diploma</td>
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<td>Sciences</td>
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<tr>
<td>Biology</td>
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<td>Chemistry</td>
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<td>Nutrition</td>
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<td>Graduate programs (***)</td>
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<td><strong>SCHOOL OF BUSINESS</strong></td>
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<td>Undergraduate Program</td>
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<td>Graduate Program(***)</td>
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### Executive Master of Business Administration (***)

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### SCHOOL OF ENGINEERING

#### Undergraduate Program

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<tr>
<th>Field</th>
<th>Tuition</th>
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<td>Civil Engineering</td>
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<td>Computer Engineering</td>
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<td>Industrial Engineering</td>
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<td>Electrical Engineering</td>
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#### Graduate Program (***)

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<tr>
<td>Computer Engineering</td>
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<td>Industrial Engineering and Engineering Management</td>
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### SCHOOL OF PHARMACY

#### Undergraduate Program

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<tr>
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#### Doctor of Pharmacy - Pharm.D. (***)

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### SCHOOL OF ARCHITECTURE & DESIGN

#### Undergraduate Program

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<th>Field</th>
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<td>Fine Arts</td>
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<tr>
<td>Interior Design</td>
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<td>Graphic Design</td>
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<td>Interior Architecture</td>
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<td>Interior Architecture - Final year</td>
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<tr>
<td>Bachelor of Architecture</td>
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### SCHOOL OF NURSING

#### Undergraduate Program

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<thead>
<tr>
<th>Field</th>
<th>Tuition</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Nursing - New students (2011-2012)</td>
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</tr>
<tr>
<td>Nursing - Continuing Students (2010-2011)</td>
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<td>438</td>
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</table>

### PROGRAM

#### ANNUAL TUITION

### SCHOOL OF MEDICINE

#### M.D. Program

<table>
<thead>
<tr>
<th>Field</th>
<th>Tuition</th>
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<tbody>
<tr>
<td>New students - Annual tuition</td>
<td>25,235</td>
</tr>
<tr>
<td>Continuing students - Year 2010-2011 - Annual tuition</td>
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</tr>
<tr>
<td>Continuing students - Year 2009-2010 - Annual tuition</td>
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</table>

(*) Exchange rate: 1 US Dollar = Lebanese Pounds 1,507.50
(**) 12 or more credit hours per term
(***)(***) Graduate Programs per credit
FINANCIAL AID

Driven by its mission, values and vision, LAU is committed to extend financial aid to needy and qualified students. In this respect, and within budget limitation, financial aid aims at providing equal opportunities to all students regardless of their nationality, race, gender, religion or ethnicity.

Financial aid is mainly a work-study program granted to full time undergraduate students based on their financial need and academic merit. The Financial Aid and Scholarships Office collects data through the application, supporting documents and a personal interview with the student and his/her parents/guardians. The data is then assessed through a system and the result is used as a guideline in the decision-making process. Final decisions are taken by a committee formed by LAU administrators and a faculty representative. Loans, scholarships and grants are complementary to the program.

UNDERGRADUATE STUDENTS

I. NEED-BASED AID

a. Work-Aid Program: All need-based financial aid recipients are required to work a certain number of hours on campus. 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.

b. Loans: to undergraduate students are extended by the university as part of the total financial aid package. Reimbursing the loan 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 the 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.

c. Grants: In case of high academic performance and upon loan request, grants are extended as part of the need-based aid in lieu of some or the entire loan amounts.

II. SCHOLARSHIPS (MERIT-BASED AID)

Scholarships are awarded to academically strong students during the first academic year of their enrollment and in subsequent years to continuing students in line with set eligibility criteria. In 2011-2012 the Entrance and Honor Scholarships will range between 20 and 50%.

a. Entrance Scholarships
Awarded to newly admitted students during the first academic year of their enrollment ending in September based on a combined rating of their high school and SAT grades. This scholarship is sustained throughout that academic year provided the student maintains a CGPA ≥ 3.00.

b. Honor Scholarships
Awarded to students upon completion of 24 credits at LAU with a CGPA ≥ 3.50, or ≥ 3.20 if budget permits.

c. Merit Scholarships
Awarded to a number of outstanding high school students covering 100% of tuition fees to encourage and promote academic excellence. Candidates are nominated by their high schools and are requested to fill out a merit scholarship application. Selection and continuity depend on set criteria.

d. Athletic/Talent Scholarships
Awarded to exceptional students with recognized promising talents in athletics or other areas. Candidates should fill out the application from the concerned departments and submit it with the relevant supporting documents.

III. GRANTS

a. Program Grants: Granted to students majoring in selected fields.

b. Restricted Grants: These grants are made available by individual donors and/or organizations. A separate application should be filled out by interested candidates and selection is made according to each donor’s publicized conditions.

c. Hardship Grants: Granted to “Very Needy” students according to set criteria.

d. Minister’s Dependents Grants: Granted to eligible dependents of Ministers from the Presbyterian Synod for Syria and Lebanon.

e. Dependents’ Grants: Granted to dependents of full-time faculty and staff.
General Information

Financial Aid

IV. STUDENT EMPLOYMENT

LAU offers employment to students who have acquired work skills as a supplementary form of financial aid catering to the needs of the university cost centres in providing additional work-force. Applying is accessible online at www.admission.lau.edu.lb. Placement and hourly rates depend on the student’s skills and academic level.

SCHOOL OF MEDICINE STUDENTS

a. Merit Scholarships and Grants: School of Medicine students are eligible for Merit Scholarships and Grants as described above.

b. Bank Loans: Agreements with certain banks are arranged allowing Lebanese Students enrolled in the School of Medicine to benefit from interest free loans during their tenure at LAU. The interest amount will be borne by the university up until the students’ exit date after which the interest will have to be covered by the students themselves.

PHARMD STUDENTS

Pharm D students are eligible for Scholarships, Grants and Bank Loans as per the above descriptions.

GRADUATE STUDENTS

a. Graduate Assistantships 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 every week, normally for an academic department. Graduate assistantships are usually awarded on the basis of academic merit.

b. Student Employment is also offered to graduate students as previously stated under point IV above.

FEDERAL LOANS FOR U.S. CITIZENS

LAU participates in the U.S. Federal Direct Loan program, where the U.S. Department of Education provides the funds. Students with U.S. citizenship (or green card holders) who are interested in this type of financial assistance may apply to FAFSA online at www.fafsa.ed.gov

U.S. Federal Direct Loans are offered to both undergraduate & graduate students except for Medical, PharmD, students in a “Special” status and students enrolled less than 6 credit hours.

For more information about this program, contact the Federal Financial Aid Coordinator Ms. Linda Strauss at: Linda.Strauss@lau.edu.lb.

APPLYING FOR FINANCIAL AID

To apply for financial aid, undergraduate students must fill out the Application for Financial Aid, available online, and submit it with the required documents, within set deadlines. The applicant must then schedule an interview for him/her and a parent/guardian.

Financial aid is granted for one regular academic year, and may be renewed, upon re-application, if the student’s eligibility is maintained.

For more information check the LAU website: www.admission.lau.edu.lb or contact the Financial Aid and Scholarships Offices on either campus.

Beirut Campus:
Tel: +961 1 786 456 / 786 464
+961 3 791 314 Ext.1461
Fax: +961 1 786456 Ext. 1662
Email: finaid.beirut@lau.edu.lb

Byblos Campus:
Tel: +961 9 547254 / 547262
+961 3 791 314 Ext. 2159
Fax: +961 1 791630 Ext. 2157
Email: finaid.byblos@lau.edu.lb
INSTITUTE FOR WOMEN’S STUDIES IN THE ARAB WORLD (IWSAW)
(Refer to Arts & Science under Centers and Institutes)

UNIVERSITY ENTERPRISE OFFICE
The University Enterprise Office (UEO) serves as a strategic advisor to and coordinator of LAU’s projects throughout the Middle East. The office provides advisory services to universities in the Middle East and North Africa region. Consulting services include: strategic, operational and academic planning, accreditation advisory, enrollment management, and implementation and performance-monitoring services.

INSTITUTE FOR BANKING & FINANCE (IBAF)
(Refer to Business school under Centers and Institutes)

INSTITUTE FOR MEDIA TRAINING & RESEARCH (IMTAR)
(Refer to Arts & Science under Centers and Institutes)

INSTITUTE OF FAMILY & ENTREPRENEURIAL BUSINESSES (IFEB)
(Refer to Business school under Centers and Institutes)

INSTITUTE OF HOSPITALITY & TOURISM MANAGEMENT STUDIES (IHTMS)
(Refer to Business school under Centers and Institutes)

HUMAN RESOURCE INSTITUTE
(Refer to Business school under Centers and Institutes)

INSTITUTE FOR PEACE AND JUSTICE EDUCATION (IPJE)
(Refer to Arts & Science under Centers and Institutes)

SOFTWARE INSTITUTE
(Refer to Arts & Science under Centers and Institutes)

INSTITUTE FOR WATER RESOURCES & ENVIRONMENTAL TECHNOLOGIES (IWRET)
(Refer to Engineering school under Institutes)

CISCO ACADEMY TRAINING CENTER
(Refer to Engineering school under Institutes)

INSTITUTE OF ISLAMIC ART & ARCHITECTURE (IIAA)
(Refer to SArD under Institutes)

INSTITUTE FOR DIPLOMACY & CONFLICT TRANSFORMATION (IDCT)
(Refer to Arts & Science under Centers and Institutes)

SUMMER INSTITUTE FOR INTENSIVE ARABIC & CULTURE (SINARC)
The Summer Institute for Intensive Arabic Language and Culture (SINARC) is a multi-faceted language and cultural immersion program that welcomes students from all over the world. SINARC offers courses in Arabic language and culture at various levels of proficiency. Each level provides twenty hours per week of intensive classroom instruction, including five hours per week of Lebanese Dialect. Formal language instruction is enriched by immersion in an authentic cultural context. Cultural activities include weekly lectures on topics related to Arab and Lebanese politics, history, society, and culture. In addition, students partake in a series of excursions to historical, cultural and tourist sites throughout Lebanon. Students have a Summer, Fall and Spring program option:

The six-week Summer program (last week of June - first week of August) is offered at four levels: Elementary, Upper Elementary, Intermediate and Advanced. A separate eight-credit course in Lebanese Dialect will be offered provided there is sufficient enrollment.

The 15-week Fall program (First week of September – Second week of December) is offered at two levels: Intermediate and Advanced. In addition, two special courses are available: Arabic Language Writing Skills and Middle East Challenges of the 21st Century.

The 15-week Spring program (Last week of January – First week of May) is offered at two levels: Intermediate and Advanced. In addition, two special courses are available: Arabic Language Writing Skills and Principles of Translation.

For more information check our website: http://www.lau.edu.lb/centers-institutes/sinarc/
Centers and Institutes

INSTITUTE FOR MIGRATION STUDIES (IMS)
(Refer to Arts & Science under Centers and Institutes)

LAU INSTITUTE FOR HUMAN GENETICS (LAUIHG)
(Refer to School of Medicine under Institutes)

CENTER FOR PROGRAM & LEARNING ASSESSMENT (CPLA)
This center focuses on quality improvement through addressing the teaching, learning and outcome assessment practices. It is a regional pioneer in providing support for faculty to develop excellence in teaching and is committed to student learning. CPLA is managing the Teaching Learning and Outcome Assessment (TLOA) Project funded by the Ford Foundation, which focuses on liberal and general education programs.

CENTER FOR LEBANESE HERITAGE (CLH)
CLH aims at collecting, preserving and promoting Lebanese heritage in its various forms, including printed material, manuscripts, artifacts, and private possessions of pioneering Lebanese intellectuals. The center disseminates and provides easy access to its assets to students and researchers. It collects, preserves and archives Lebanese heritage materials, and serves as an academic and cultural resource center for research on Lebanese heritage. It also functions as a caucus center for the community on topics concerning Lebanese heritage.
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