Embank, explore, discover.

ACADEMIC CATALOG

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54. Freshman Requirements
57. The School of Architecture and Design
59. Department of Fine Arts and Foundation Studies
67. Department of Architecture and Interior Design
93. Department of Design (Graphic Design and Fashion Design)
107. The School of Arts and Sciences
110. Department of Communication Arts
122. Department of Computer Science and Mathematics
145. Department of Education
165. Department of English Language Instruction
167. Department of Humanities
208. Department of Natural Sciences
239. Department of Social Sciences
261. The School of Business
308. The School of Engineering
311. Department of Civil Engineering
329. Department of Electrical and Computer Engineering
350. Department of Industrial and Mechanical Engineering

Research:
409. Institutes
411. Labs and Centers

Appendixes:
421. Appendix A: Faculty

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**SEPTEMBER 2013**

**Monday 2**  
Medical years I and II classes begin

**Monday 9–Monday 16**  
Registration for freshman students accepted into a program for fall 2013

**Tuesday 10–Friday 13**  
Orientation program for new students

**Monday 16**  
Deadline for intercampus transfer for fall 2013

**Tuesday 17–Friday 20**  
Advising period for new students

**Tuesday 17–Friday 20**  
Registration for new students for fall 2013

**Tuesday 17–Friday 20**  
Registration for Pharmacy Professional Year students

**Friday 20**  
Registration for returnee students who reactivated files for fall 2013

**Monday 23**  
Fall 2013 classes begin

**Monday 23–Friday 27**  
Late registration with late fees and Drop/Add for fall 2013

**OCTOBER 2013**

**Wednesday 2**  
Collection of statements of fees for fall 2013 begins

**Thursday 10**  
Deadline for payment of tuition fees for fall 2013

**Saturday 12**  
Fall faculty meeting and new faculty orientation

**November 2013**

* **Monday 4**  
Hijra New Year (holiday)

* **Wednesday 13**  
Ashoura (holiday)

**Thursday 21**  
Deadline for Incomplete grades (from spring and summer 2013)

**Friday 22**  
Independence Day (holiday)

**December 2013**

**Friday 6**  
Last day for withdrawal from courses for fall 2013 (WP/WF)

**Tuesday 24**  
Christmas and New Year vacation begins

**January 2014**

**Monday 6**  
Armenian Christmas - Christmas and New Year vacation ends

**Tuesday 7**  
Classes resume

**Tuesday 7–Friday 10**  
Advising period for current students

**Tuesday 14–Monday 20**  
Registration for current students for spring 2014

* **Monday 13**  
Prophet’s Birthday (holiday)
### March 2014
- **Monday March 3–Tuesday April 8**
  - Phase 1 advising for summer 2014/ fall 2014/spring 2015
- **Wednesday 19**
  - Last day for early withdrawal from spring 2014 (WI)
- **Tuesday 25**
  - Annunciation Day (holiday)

### April 2014
- **Thursday 10**
  - Deadline for Incomplete grades (from fall 2013)
- **Friday 18–Monday 21**
  - Eastern & Western Easter vacation
- **Tuesday 22**
  - Classes resume
- **Tuesday 29**
  - Last day for withdrawal from courses for spring 2014 (WP/WF)
- **Wednesday April 30–Thursday May 15**
  - Payment of deposit for fall 2014

### May 2014
- **Thursday 1**
  - Labor day (holiday)
- **Sunday 4**
  - Medical year IV ends
- **Tuesday 27**
  - Spring 2014 classes end
- **Wednesday 28–Thursday 29**
  - Reading period
- **Friday 30 - Monday June 9**
  - Final exams period
- **Thursday May 22-Wednesday June 11**
  - Phase 2 advising: reconfirmation of advising for summer and fall 2014

### June 2014
- **Sunday 1**
  - Medical year III ends
- **Monday 2**
  - Deadline for intercampus transfer for Module I & II for all students
- **Tuesday 10**
  - Delay for Module I, summer 2014
- **Friday 13–Monday 16**
  - Registration for current students for Module I, summer 2014
- **Tuesday 17**
  - Registration for new students
- **Tuesday 17**
  - Registration for returnee students who reactivated files for Module I, 2014
- **Wednesday 18**
  - Module I, summer 2014 classes begin
- **Wednesday 18–Friday 20**
  - Late registration with late fees & Drop/Add period for Module I, 2014
- **Monday 23**
  - Collection of statements of fees for Module I, summer 2014 begins
- **Monday 30**
  - Deadline for payment of tuition fees for Module I, summer 2014

### July 2014
- **Tuesday 1**
  - Last day for early withdrawal for Module I, summer 2014 (WI)
- **Tuesday 1**
  - Medical year III and IV classes begin
- **Friday 4**
  - Commencement Exercises - Byblos Campus
- **Monday 7–Tuesday 8**
  - Registration for current students for Module II, summer 2014
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<td><strong>Monday 1</strong></td>
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<tr>
<td><strong>Wednesday 23</strong></td>
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<tr>
<td><strong>Wednesday 23</strong></td>
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<tr>
<td><strong>Thursday 24</strong></td>
<td>Reading period</td>
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<tr>
<td><strong>Friday 25</strong>–<strong>Saturday 26</strong></td>
<td>Final exams period</td>
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<tr>
<td><strong>Monday 15</strong></td>
<td>Last day for withdrawal (WI) for Module II, summer 2014</td>
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<tr>
<td><strong>Friday 22</strong></td>
<td>Deadline for intercampus transfer for fall 2014 for all students</td>
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<td><strong>Tuesday 5</strong></td>
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<tr>
<td><strong>Wednesday 6</strong></td>
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<td>Last day for withdrawal (WP/WF) from courses for Module II, summer 2014</td>
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<td><strong>Monday 1</strong></td>
<td>Classes for medical students years I and II begin (2014-2015)</td>
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<td><strong>Wednesday 10</strong></td>
<td>Module II, summer 2014 classes end</td>
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<tr>
<td><strong>Thursday 11</strong></td>
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<tr>
<td><strong>Friday 12</strong>–<strong>Saturday 13</strong></td>
<td>Final exams for Module II, summer 2014</td>
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<tr>
<td><strong>Monday 15</strong></td>
<td>Registration for new students and Pharmacy Professional Year students</td>
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<tr>
<td><strong>Monday 15</strong>–<strong>Friday 19</strong></td>
<td>Registration for new students and Pharmacy Professional Year students</td>
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<tr>
<td><strong>Friday 26</strong></td>
<td>Deadline for fall 2014 registration</td>
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<tbody>
<tr>
<td><strong>Monday 1</strong></td>
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<tr>
<td><strong>Monday 1</strong></td>
<td>Classes for medical students years I and II begin (2014-2015)</td>
</tr>
<tr>
<td><strong>Wednesday 10</strong></td>
<td>Module II, summer 2014 classes end</td>
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<tr>
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* Tentative date(s)
Key to Course Listings

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.

### SUBJECT ABBREVIATIONS:

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<td>ACC</td>
<td>Accounting</td>
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<td>ARA</td>
<td>Arabic</td>
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<td>ARC</td>
<td>Architecture</td>
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<td>ART</td>
<td>Fine Arts</td>
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<td>BCH</td>
<td>Biochemistry</td>
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<td>BIO</td>
<td>Biology</td>
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<td>BUS</td>
<td>Business</td>
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<td>CHM</td>
<td>Chemistry</td>
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<td>CIE</td>
<td>Civil Engineering</td>
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<td>CLT</td>
<td>Comparative Literature</td>
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<td>COE</td>
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<td>COM</td>
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<td>CSC</td>
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<td>CST</td>
<td>Cultural Studies</td>
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<td>DES</td>
<td>Interior Design</td>
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<td>Education</td>
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<td>Family and Entrepreneurial Management</td>
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<td>Finance</td>
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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 Methods 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.
Lau Facts
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, resulting in 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, BCW was granted a provisional charter by the Board of Regents of the University of the State of New York and authorized to bestow the Associate in Arts (A.A.) and Associate in Applied Sciences (A.A.S.) 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 (B.A.), Bachelor of Science (B.S.), 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 B.A. and B.S. degrees as equivalent to the national Licence. Having accepted men into some A.A. programs, the college in 1973 changed its name to Beirut University College (BUC). The following academic year, five B.A./B.S. majors were opened to male students, and in October 1975 men were admitted into all programs. In 1978, BUC opened an off-campus program in the north, and a year later another one was operational in the south.

Adding to the college’s constantly evolving programs, in 1985, the Board of Regents amended the charter to include two branches.

In 1987, based on the amended charter, BUC opened its northern branch on the outskirts of the historical port of Byblos in rented buildings in Amsheet. In October 1991 classes started in the newly built campus at Blat overlooking Byblos; it was officially inaugurated on July 16, 1992.

According to a Board decision, BUC became a university in October 1992. In 1994, the Board of Regents in New York approved BUC’s request to change its name to the Lebanese American University (LAU), reflecting further growth and the addition of several professional schools.

In 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 Chagoury 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. The pharmacy school has been accredited by the Accreditation Council for Pharmaceutical Education (ACPE) since 2002. This school is the only school of pharmacy accredited by the ACPE outside the United States. In the summer of 2011, all LAU engineering programs (electrical, civil, computer, industrial and mechanical engineering) as well as the Computer Science program became fully accredited by the Accreditation Board for Engineering and Technology (ABET).

In December 2012, LAU bought a property in midtown Manhattan that will serve as the LAU Headquarters and Academic Center in New York. LAU is the first American university operating overseas to open an academic center in New York.
BOARD LEADERSHIP

GENERAL DUTIES OF THE BOARD OF TRUSTEES

The Board of Trustees (BOARD) shall be responsible for seeing that the purpose of the University is met organizationally, administratively, educationally, spiritually, socially, and 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:
   • To select and support or remove the President of the University;
   • To ensure that an adequate statement of mission and purpose be established;
   • To assure that an adequate long range plan for the University is developed; and
   • 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:
   • To ensure that the institution utilizes the resources at its disposal to further its mission and purposes; and
   • 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.
   • 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;
   • To evaluate the financial health of the institution through the traditional annual audit and through comparative data from other institutions; and
   • To devise means of assessing the management performance of the administrative staff utilizing outside consultants when necessary or by redefining the annual audit to include management auditing.

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

Ex-Officio Members
Mr. Kanan Hamzeh
Rev. Dr. Nuhad Tomeh
Rev. Fadi Dagher
Dr. Joseph Jabbra
Senate Chair
GENERAL DUTIES OF THE BOARD OF INTERNATIONAL ADVISORS

The mission of the Board of International Advisors (BIA) is to provide advice, guidance, support, and advocacy for the University as well as for the continuing development of its undergraduate and graduate programs. The BIA’s role is advisory to the University President, and to the Board of Trustees.

The BIA serves as an advocacy group both on and off campus and will assist in promoting a positive LAU image with its constituents and society at large; moreover, it shall act as an advisor to the Board of Trustees and its Executive Committee on university policies; further, the BIA membership will include individuals of distinction who will bring their considerable talents, experience and wisdom to assist in promoting LAU and strengthening its mission.

The BIA shall consist of prominent international leaders willing to become involved in helping the University fulfill its mission. The members should be devoted to the promotion and to the advancement of the cause of LAU as an American Higher Education Institution operating in the Middle East.

The Duties of each member shall be to:

- Promote the educational and strategic goals of the University.
- Serve, wherever situated, as an LAU ambassador.
- Strengthen LAU as an educational institution by communicating to the President suggestions, complaints, needs, and trends.
- Actively support LAU’s mission statement at all times.
- Carry the word, whenever possible, about the University’s accomplishments to professional and personal acquaintances.
- Help, as appropriate, with the cultivation and solicitation of financial support for the University.
- Attend, as appropriate, events sponsored by the University.

BOARD OF INTERNATIONAL ADVISORS:
Mr. Kanan Hamzeh,  
Chair of the Board of International Advisors
Mr. George Doumet,  
Secretary of the Board of International Advisors
Dr. Raymond Audi  
Mrs. Taline Avakian  
Dr. Jihad Azour  
H.E. Ivonne A. Baki  
Mr. Zuhair Boulos  
Mrs. Abla Chammas  
Mr. Bassem F. Dagher  
Mr. Mazen S. Darwazah  
Mr. Neemat G. Frem  
Mrs. Maha Kaddoura  
Dr. Mahmoud A. Kreidie  
Dr. Mary Mikhael  
Mrs. Adalat Audeh Nakkash  
Mr. Mazen Nazzal  
Mrs. Youmna Salame  
Mr. Talal K. Shair

Ex-Officio Members
Rev. Fadi Daghaer  
Mrs. Leila Saleeby Daghaer  
Dr. Joseph Jabbra  
Senate Chair
LAU’s Mission, Values, and Vision

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.

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 fulfillment, 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.

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.
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.

B. ACADEMIC SERVICE
   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;
   Resources shall be made available to adequately support the academic offerings of the university;
   Learning laboratory facilities shall be established to augment the traditional classroom teaching methods and 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 require-
ments 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:

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;

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

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.
PRESIDENTS AND ADMINISTRATIVE OFFICERS
FORMER PRESIDENTS

LAU PRESIDENTS

Frances Irwin, 1924–1935
Winifred Shannon, 1935–1937 (Acting)
William A. Stoltzfus, 1937–1958
James. H. Nicol, 1941–1943 (Acting)
Rhoda Orme, 1954–1955 (Acting)
Grace Loucks Elliot, 1958–1959 (Acting)
Frances M. Gray, 1959–1965
Salwa Nassar, 1965–1967
Marie Sabri, 1967–1969 (Acting)
Albert Y. Badre, 1973–1982
Riyad F. Nassar, 1982–2004

PRESIDENT AND ADMINISTRATIVE OFFICERS

PRESIDENT

Joseph G. Jabbra, Ph.D., President

UNIVERSITY OFFICERS

George Najjar, 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 Larnah, B.S., C.P.A., Vice President for Finance
Roy Majdalani, B.E., M.B.A., Vice President for Human Resources and University Services
Nashat Mansour, Ph.D., Interim Dean of the School of Arts and Sciences

Said Ladki, Ph.D., Interim Dean of the School of Business
Elie Haddad, Ph.D., Dean of the School of Architecture & Design
George Nasr, Ph.D., Dean of the School of Engineering
Youssef Comair, M.D., Dean of the School of Medicine
Pierre Zalloua, Ph.D., Dean of the School of Pharmacy
Nancy Hoffart, Ph.D., Founding Dean of the School of Nursing
Elie Badr, Ph.D., Assistant Provost for Academic Programs
   Assistant to the President and Strategic Officer for External Projects and Related Entities

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 Abou Rjeily, Licence, Assistant Vice President for Finance/University Comptroller

Peggy Hanna, M.B.A., Assistant Vice President for Marketing and Communications
Abdo Ghié, M.P.A., Assistant Vice President for Enrollment Management
Camille Abou-Nasr, B.E., Assistant Vice President for Information Technology
Nassib Nasr, M.P.H., Assistant Vice President for Development, Middle East and Europe

Jihad Njeim, M.B.A., Assistant Vice President for Human Resources
Robert Hollback, B.S., Assistant Vice President for Development, North America
Camille Issa, Ph.D., Faculty Senate Chair
Tarek Na’was, Ph.D., Faculty Senate Vice Chair
Nadra Assaf, Ed.D., Faculty Senate Secretary
ACADEMIC OFFICERS

SCHOOL OF ARCHITECTURE & DESIGN
Dean
Elie Haddad, Ph.D.

Assistant Dean
Farid Jreidini, B.Arch.

Chairs
José Manuel Pagés Madrigal, Ph.D., Architecture & Interior Design
Yasmine Taan, Ph.D., Design
Rached Bohsali, D.E.A., Fine Arts & Foundation Studies

Associate Chairs
Melissa Plourde Khoury, M.F.A., Design
Silia Abou Arbid, B.Arch., Fine Arts & Foundation Studies
Nada Khoury, Ph.D., Architecture & Interior Design

SCHOOL OF ARTS & SCIENCES
Interim Dean
Nashat Mansour, Ph.D.

Associate Deans
Haidar Harmanani, Ph.D.
Bassel Salloukh, Ph.D.

Assistant Deans
Nahla Bacha, Ph.D.
Sandra Jamati, Ph.D.

Interim Chair
Nahla Bacha, Ph.D., Humanities

Chairs
Samer Habre, Ph.D., Computer Science and Mathematics
Mona Majdalani, Ph.D., Communication Arts
Rima Bahous, Ed.D., Education
Rula Diab, Ph.D., English Language Instruction
Costantine Daher, Ph.D., Natural Sciences
Paul Tabar, Ph.D., Social Sciences

Associate Chairs
Danielle Azar, Ph.D., Computer Science and Mathematics
Nada Saab, Ph.D., Humanities
Ralph Abi-Habib Ph.D., Natural Sciences
Marwan Rowayheb, Ph.D., Social Sciences

Program Coordinator
Therese Nasrallah, M.S., English Language Instruction

SCHOOL OF BUSINESS
Interim Dean
Said Ladki, Ph.D.

Associate Deans
Salpie Djoundourian, Ph.D.
Abdallah Dah, Ph.D.

Assistant Dean
Ayman Reda, Ph.D.

Chairs
Silva Karkoulian, Ed.D., Management Studies
Josiane Sreih, Ph.D., Hospitality and Marketing
Khodr Fakih, Ph.D., Information Technology and Operation Management
Elias Raad, Ph.D., Finance and Accounting/ Director of Executive Education Programs
Ghassan Dibeh, Ph.D., Economics/Director of Graduate Studies

Associate Chairs
Walid Marrouch, Ph.D., Economics
Bernard Ben Sita, Ph.D., Finance and Accounting
Leila Messarra, Ed.D., Management Studies
Guy Assaker, Ph.D., Information Technology and Operation Management and Management Studies

SCHOOL OF ENGINEERING
Dean
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Associate Dean
Samer Saab, Ph.D.

Assistant Dean
Barbar Akle, Ph.D.

Chairs
Zahi Nakad, Ph.D., Electrical & Computer Engineering
Jean Chatila, Ph.D., Civil Engineering
Michel Khoury, Ph.D., Industrial & Mechanical Engineering

SCHOOL OF PHARMACY
Dean
Pierre Zalloua, Ph.D.

Associate Dean
Imad Btaiche, Pharm.D., Academic Affairs

Acting Assistant Dean
Iad Abdallah, Ph.D., Student Affairs

Directors
Lamis Karoui, Pharm D, Experiential Education
Aline Saad, Pharm.D., Pharmacy Practice
Roy Kanbar, Ph.D., Pharmaceutical Sciences

SCHOOL OF MEDICINE
Dean
Youssef G. Comair, M.D., FRCSC

Associate Deans
Jacques E. Mokhbat, M.D., Graduate Medical Education
Zeinat Hijazi, M.B.B.Ch, DCH, MRCP, FRCP, MRCPCH, FRCPC, Medical Education

Assistant Dean
Sola Bahous, M.D., Ph.D., Clinical Affairs

Chairs
Elie Abi Nader, M.D., Acting Chair-Anesthesiology
Zeina Tannous, M.D., Dermatology
Youssef G. Chami, M.D., FACC, Medicine
Tony G. Zreik, M.D., M.B.A., Obstetrics & Gynecology
Sharbel Fahd, M.D., Acting Chair- Ophthalmology
Hussein Farhat, M.D., Acting Chair-Pathology & Laboratory Medicine
Gerard Wakim, M.D., Acting Chair-Pediatrics
Joe El-Khoury, M.D., Radiology
Eddie K. Abdalla, M.D., FACS, Surgery

Director
Pierre Zalloua, Ph.D., Genomics and Proteomics Lab
SCHOOL OF NURSING

Founding Dean
Nancy Hoffart, Ph.D.

Assistant Dean
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
Samira Aghacy, Ph.D., Director

LIBRARIES
Cendrella Habre, M.S., University Librarian
Joseph Hage, M.A., Director, Byblos

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
Assia Kanaan, M.Ed., Supervisor, Beirut
Suzy Saba, T.S., Supervisor, Byblos

ENROLLMENT MANAGEMENT
Abdo Ghié, M.P.A., Assistant Vice President for Enrollment Management

Admissions
Nada Hajj, 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
Annie Lajinian-Magarian, M.A., University Registrar
Fouad Salibi, B.A., Deputy Registrar

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, Ph.D., Assistant Vice President for Finance/Budget & Grants
Charlles Abu Rjeily, License, University Comptroller
Simon Sakr, M.B.A., Comptroller
Business Office
Naji Medlej, D.E.A., Comptroller, Beirut
Michel Chahine, M.S., Comptroller, Byblos

HUMAN RESOURCES & UNIVERSITY SERVICES OFFICERS

Human Resources
Jihad Njeim, M.B.A., Assistant Vice President for Human Resources
Joseph Michael, D.E.S., Director, Byblos

Facilities Management
George Hamouche, M.S., Assistant Vice President for Facilities Management
Shaheen Bou Jaoude, B.E., Executive Director, Project Management and Contract Administration
Joseph Shebaya, D.I., Director, Planning and Renovations
Wissam Mansour, B.E., Director, Physical Plant, Byblos
Nabil Badran, B.E., Director, Capital Projects, Beirut
Toufic Smayra, B.E., Director, Capital Projects, Byblos

Information Technology
Camille Abou-Nasr, B.E., Assistant Vice President for IT
Roula Matta Hage, Diplôme, Director, IT Applications and Solutions
Nicolas Majdalani, Licence, Director, IT Infrastructure and Support
Brigitte Baroudy, B.S., Director, IT Security
Hamid Saliba, Diplôme, Director, IT Network, Telecom & Multimedia

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
Robert Hollback, B.S., Assistant Vice President for Development, North America
Christian Oussi, M.A., Executive Director of Public Relations
Abdallah Al Khal, M.B.A., Executive Director of Alumni Relations
Edward Shiner, M.M., Alumni Programs Manager, New York
Amal Abdel Massih, B.S., Director of Advancement Services
Marge Pfleiderer, B.A., Director of Operations, New York

INTERNAL AUDIT OFFICE
Khaled Abul-Husn, M.B.A., C.P.A., Director
ADMISSION AND ACADEMIC REGULATIONS
UNDERGRADUATE PROGRAMS
A. GENERAL ADMISSION REQUIREMENTS

Applicants must submit the following:

- The Admissions Application Form, available at the Admissions Offices or online at http://admissions.lau.edu.lb.
- 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.
- Official scores of the SAT exams.
- A photocopy of the identity card or passport (this should correspond to the nationalities declared in the application form).
- Two recent passport-size color photos.
- A non-refundable application fee of $50 (L.L. 75,000) payable either in cash (for the paper application) or by credit card (for the online application).
- The official secondary school certificate and its official Lebanese equivalence, as soon as they become available.
- Applicants taking the TOEFL should sit for the international test. Institutional TOEFL is not accepted at LAU. When registering for SAT I, SAT II or TOEFL, please use LAU’s code: 2595.

B. 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:

- Test of English as a Foreign Language (TOEFL)\(^2\);
- English Entrance Exam (EEE) administered by LAU, which may be repeated at a one-month interval;
- SAT I Writing.

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

C. ADMISSION TO THE FRESHMAN CLASS

Applicants who may qualify for admission to the freshman class are:

2. Applicants coming from the British system 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.
3. Applicants who have successfully completed one year of the CEGEP (collège d’enseignement général et professionnel) in Québec, Canada.
4. Holders of the International Baccalaureate certificate from outside Lebanon.

\(^1\) All submitted documents become the property of LAU and will not be returned.
Holders of a GCE (General Certificate of Education) 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 enroll 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 enrollment at LAU.

The Equivalence Committee specifies a minimum score of 2600 for Freshman Arts and 2750 for Freshman Science for the six subjects of SAT I and SAT II combined.

The subjects in the SAT II exams required for applicants to the Freshman Science are:
- Mathematics 2C;
- Two sciences from Biology, Chemistry, or Physics.

The subjects of SAT II exams, required for applicants to the Freshman Arts, are:
- Mathematics I or IC;
- Any two subjects from the SAT II subject tests.

D. ADMISSION TO THE SOPHOMORE CLASS

Applicants who may qualify for admission to the sophomore class are:

1. Holders of one of the four types of the Lebanese Baccalaureate:
   a. General Science;
   b. Life Science;
   c. Economics and Sociology;
   d. Literature and Humanities.

2. 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.

3. Holders of the official secondary school certificates equivalent to the Lebanese Baccalaureate such as the French Baccalaureate, the International Baccalaureate Diploma, the German Abitur and the Tawjihiieh. Lebanese applicants under this category must obtain an official equivalence from the Lebanese Ministry of Education.

4. Applicants who have successfully completed two years of the CEGEP (Collège d’enseignement général et professionnel) in Québec, Canada.

5. 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.

The above-mentioned 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 Arabic requirements.

E. ADMISSION OF TRANSFER STUDENTS

1. 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.

2. 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.

3. 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.

4. 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 ENGo09 (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.

5. 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 enrollment at LAU, six of which must be major courses, and achieve a minimum GPA of 2.50/4.00. Then, they may petition the school concerned for transfer of credits if applicable.

6. Students transferring from an institution of higher education to LAU’s School of Architecture and Design are required to present a student work portfolio.

F. ADMISSION FOR A SECOND DEGREE
Applicants for the second degree must apply for admission and must complete all the requirements of the school in which they intend to enroll.

G. 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.

H. 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.

I. 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.
Academic Rules 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 Council of Deans 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 Office of the Dean of Students 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 from the GPA;

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 B.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 ENG102 to complete their freshman requirements may be allowed by the University Admissions Council to declare a major. These students must register in ENG102 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 ENG102 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’s 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 credits), 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 REQUIREMENTS
Students may accumulate up to 2 credits of Physical Education besides PED101 Basic Health. Beyond this, Physical Education credits will not count towards graduation.

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

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 a maximum of 21 credits.
3. Students, in their last semester of graduation, may register for a maxi-
mum 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 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 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, 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/NO 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 are graduating with a B.A./B.S. 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 department 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 department 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, 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 WI, WP or WF. Refer to Section IX: Scholastic Standing for details.
F. COURSE SUBSTITUTION
Course substitutions in the major courses may be made, under special circum-
stances, before final registration for the course, and upon the recommendation
of the department concerned and the approval of the Academic School Council.
Substitution of the university requirements needs the approval of the Universi-
ty 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
department offering the course.
   c. Register for the courses—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—fall and spring semesters. During the summer modules, students can
cross-register for as many credits as they wish, within the limit allowed by the
student’s course load regulation.

2. Cross-Registering to Other Universities in Lebanon:
Cross-registration to another university in Lebanon may be allowed only if a
course in the last term of study is needed for graduation and the course is not
offered on any LAU campus.

Furthermore:
   a. A cross-registered course will not be allowed for a repeat.
   b. The course will be treated as a transfer course.
   c. An agreement should exist between LAU and the university where the
course is to be taken before allowing for cross-registration. Students
should pay at LAU.

The students must follow the following procedure:
   a. The student must fill out the Cross-Registration Form and a Regular Regis-
   tration Form, and have them approved by the advisor and the 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’s Office 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 observe the following requirements:
   a. Prior approval of the Academic School Council is needed in order for the
course to be transferred.
   b. It is the duty of the student to provide the Academic School Council with
the catalog, course description, and syllabus of the course(s).
   c. The course(s) should not be a repeat.
   d. The course(s) should not be within the last 30 credits needed for graduation.
   e. The course is to be considered a transfer course.

A course may be transferred only if the student’s grade in the course is equiva-
 lent to C or above. Transferred courses are not included in the GPA computation.

H. REFUND POLICY
Courses dropped after the Drop/Add period will not be refunded.
I. AUDITING COURSES
LAU students may audit courses; however, they should secure the consent of the instructor and the 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 will receive a WI, WP or WF depending on the time of withdrawal as indicated in Section IX: Scholastic Standing.

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

V. CLASSIFICATION OF STUDENTS
Students are classified as full-time when they enroll in 12 credits and above, and they are considered part-time when they enroll in fewer than 12 credits per semester.

A. DEGREE STUDENTS
Degree students are classified as follows:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Credits Hours 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 &amp; 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/Add period.

Such specific attendance regulations should be mentioned in the syllabi. Instructors are to inform their departments and the Office of the Dean of Students of any prolonged unexplained absence of a given student. The number of absences in summer modules is prorated.

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

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

B. MAKEUP 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 adds up to 10, they are to be made up as follows:

a. Three days to be made up according to a schedule set at the discretion of
each faculty member;
b. Seven days to be scheduled by a decision of the University Planning Council (or Academic School Council) in consultation with the faculty.
c. 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 department chairperson and the Registrar’s Office.

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

<table>
<thead>
<tr>
<th>Class Type</th>
<th>Maximum Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture courses</td>
<td>40 students</td>
</tr>
<tr>
<td>Language and seminar courses</td>
<td>25 students</td>
</tr>
<tr>
<td>Studio, lab, internship, and physical education courses</td>
<td>20 students</td>
</tr>
</tbody>
</table>

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

VIII. TESTS AND EXAMINATIONS

A. REGULATIONS AND PROCEDURES
a. 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.
b. 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, 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-1: 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-1 are met.
c. Any incomplete work (refer to Section IX-1: 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 the cases of senior study and internship courses in the School of Arts and Sciences, the incomplete work must be completed no later than one regular semester. 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.
d. 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.
e. 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.

f. 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.

g. Students are entitled to review their final examination paper in the instructor’s office (or the department chairperson’s office, in case of the absence of the instructor concerned). Final examination papers will be retained by the instructor, or the department chairperson for the following two regular semesters.

h. Some of the above rules, namely rules a, d, and g, may not apply to 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.

i. In case of illness, or major emergency leading to absence from an announced examination, a student must notify, within a week, the Office of the Dean of Students and the instructor/division/department concerned.

B. CODE OF CONDUCT DURING EXAMINATIONS
Students are expected to abide by the Code of Conduct during all examinations. For more details on conduct during examinations, kindly refer to the Student Code of Conduct.

IX. SCHOLASTIC STANDING

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

<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>I</td>
<td>No quality points</td>
</tr>
<tr>
<td>WI</td>
<td>No quality points</td>
</tr>
<tr>
<td>WP</td>
<td>No quality points</td>
</tr>
<tr>
<td>WF</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 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 in 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.c of this document explains how to have the grade of I changed to a different grade.

- WI (early withdrawal) indicates withdrawal from the course, after the late registration period and until the end of the 5th week of the fall and spring semesters, and until the 10th day of the summer modules. It has no quality points. It does not count in the GPA, and no credits will be added to the student’s record.

- WP (Withdrawal Pass) indicates withdrawal from the course, after the 5th week and until the end of the 10th week of the fall and spring semesters, and from the 11th day of classes until 18th day of the summer modules. It has no quality points. It does not count in the GPA, and no credits will be added to the student’s record.

- WF (Withdrawal Fail) indicates withdrawal from the course, after the 5th week and until the end of the 10th week of the fall and spring semesters, and from the 11th day of classes until 18th day of the summer modules. It has no quality points. It does not count in the GPA, and no credits will be added to the student’s record, but is counted as repeat.

- A Withdrawal Form must be submitted to the Registrar’s Office.

**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>CREDITS</th>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARA201 Arabic</td>
<td>D</td>
<td>3</td>
<td>1 x 3</td>
</tr>
<tr>
<td>BIO101 Biology</td>
<td>A</td>
<td>4</td>
<td>4 x 4</td>
</tr>
<tr>
<td>ENG102 English</td>
<td>C+</td>
<td>3</td>
<td>2.33 x 3</td>
</tr>
<tr>
<td>CST201 Cultural Studies</td>
<td>B-</td>
<td>3</td>
<td>2.67 x 3</td>
</tr>
<tr>
<td>HLT201 Basic Health</td>
<td>F</td>
<td>1</td>
<td>0 x 1</td>
</tr>
</tbody>
</table>

\[ \text{TOTAL} = 3 + 16 + 6.99 + 8.01 + 0 = 34 \]

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, and I have been given are not counted in computing the GPA. Similarly, WI, WP, WF are not counted in computing the GPA.

**C. REPEATING COURSES**

- a. 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 WF in a 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.

- b. 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.

- c. 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.

- d. Students are not allowed to register in any course more than three times, not including withdrawal types WI and WP. Students unable to get a
passing grade after repeating the course two times will be dropped from
the university, or the program, depending on whether the course is part
of the Liberal Arts Curriculum 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
a. All semester grades must be turned in to the Registrar’s Office no later
than 72 hours after the particular final examination is given.
b. 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.
c. 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 Bachelor’s Degrees
a. Holders of the Lebanese Baccalaureate, or any official certificate equiva-
   lent to the Lebanese Baccalaureate, who are admitted to the sophomore
class, are required to complete a minimum of 92 credits, excluding fresh-
man-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 B.A./B.S. program. Lebanese students entering as freshmen need to get
the Lebanese Baccalaureate equivalence after completing the freshman
requirements and before switching to a B.A./B.S. program. Students can-
not 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 be counted within
the credits required for the major. These extra credits should not be of
freshman-level courses. Freshman courses taken after the Baccalaureate
II equivalence will not be counted toward 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
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
B.A./B.S. 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 B.A./B.S. students transferring from other institutions
whose curriculum does not include a liberal arts core.
Admission and Academic Regulations

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 after 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.
l. Special rules pertaining to specific programs may apply. They are listed under the respective programs’ requirements in this catalog.

2. Requirements for a Minor

Students can work for a minor by completing, with a minimum GPA of 2.00, the minor’s 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.

3. 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 B.S. or a B.A. degree. No more than six credits of transferable courses may be counted toward the Teaching Diploma.

F. ACADEMIC RECOGNITION

a. 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.

b. 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. 

- Students will not be placed on probation until they have 20 or more credits counted in the cumulative GPA.
- 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. 
- 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 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 enrollment at LAU (summer modules excluded), regardless of any Incompletes and semester Withdrawals.

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, totaling 26.4 quality points. If the student attempts less than 12 credits, a total of 26.4 quality points or more would still be required.

Students who may petition for a one semester grace period are those who lack 12 or fewer 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 given two semesters, excluding summer modules, to remove the probation. If they fail to remove the probation, they will be dismissed.

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

Students suspended for academic deficiencies may petition the University Admissions Council for readmission if at least one of the following conditions is met:

- 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.
- The student has spent one full calendar year outside LAU engaged in activities that may improve his/her chances of academic success.
- 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 after seven years of work experience. Each case will be studied individually.
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:

1. The Application Form, available at the Admissions Offices or online at [http://admissions.lau.edu.lb](http://admissions.lau.edu.lb).
2. 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.
3. Originals of all educational and professional certificates.
4. 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.
5. Official scores of the Test of English as a Foreign Language (TOEFL), or the English Entrance Exam (EEE) administered by LAU, which may be repeated at a one-month interval.
6. Applicants to the M.B.A. must submit the official scores of the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE).
7. 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\(^\text{1}\) (it is mandatory for the M.A., M.S., and M.S.E. programs).
8. Applicants to the School of Medicine must submit the official scores of the MCAT.
9. A photocopy of the Identity Card or Passport (should be the same as the nationality used in the registration).
10. One recent passport-size color photo.
11. A non-refundable fee of $50 (L.L. 75,000) payable either cash or by check drawn on a Lebanese or U.S. bank.
12. 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.
13. The W-9S form should be filled and submitted by all applicants who are U.S. citizens or U.S. green card holders.

Applicants to the School of Medicine are allowed a maximum of two MCAT sittings. In case of more than two sittings, only the first two will be considered. For minimum required test scores, please contact our Admissions Offices.

**ADDITIONAL ADMISSION REQUIREMENTS TO SPECIFIC PROGRAMS**

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 M.S.E. programs must be holders of a B.E. in Engineering.)

- 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\(^\text{1}\).
- Applicants to the School of Medicine must submit the official scores of the MCAT.
- A photocopy of the Identity Card or Passport (should be the same as the nationality used in the registration).
- One recent passport-size color photo.
- A non-refundable fee of $50 (L.L. 75,000) payable either cash or by check drawn on a Lebanese or U.S. bank.
- 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.
- The W-9S form should be filled and submitted by all applicants who are U.S. citizens or U.S. green card holders.

\(^\text{1}\) All submitted documents become the property of LAU and will not be returned.

\(^\text{2}\) 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.

\(^\text{3}\) When registering for GMAT or GRE, please use LAU’s code: 0954.
be accepted on probation.

b. For the School of Medicine, the cumulative GPA and the GPA of the pre-med courses assigned by LAU should not fall below the required level.

c. 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 written in English, and the other in the candidate’s second language) should be submitted when applying.

d. Applicants to the Executive Master of Business Administration (E.M.B.A.) 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, nor to M.B.A., School of Medicine, or Pharm.D.)

If the bachelor’s degree of the applicant is not in the field to be pursued, but his/her cumulative GPA is 2.75 and above, then the applicant may be accepted as a special graduate, and will be required to take remedial courses in the major. Such students must complete all course requirements specified by the relevant academic program with a minimum GPA of 2.75 before they are considered bona fide students in the master’s program.

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.

The School of Medicine does not accept applicants on transfer basis.

**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.

Accepted applicants on probation into the M.B.A. program will earn regular status upon the completion of 12 graduate credits with a minimum grade of B on each course without repeats otherwise they will be dismissed.

Probationary admission is not applicable to the School of Medicine or to the Pharm.D. program.
I. REGISTRATION RULES

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.

2. 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.

3. 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 E.2 (Rights and obligations).

4. 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 II.4: Transfer of credits.

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

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

7. 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/Add period.
   b. Students will get no refund for courses dropped after the Drop/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

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 Point</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>
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<td>B-</td>
<td>2.67</td>
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<td>C+</td>
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<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>
</tbody>
</table>

- 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 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 U: Assigned to a course taken on audit basis. It adds no credits and it has no quality points.
- Grade I: Represents 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.
- WI: (early withdrawal) indicates withdrawal from the course, after the Late Registration Period and until the end of the 5th week of the fall and spring semesters, and until the 14th day of the summer module. It has no quality points. It does not count in the GPA, and no credits will be added to the student’s record.
- WP: (Withdrawal Pass) indicates withdrawal from the course, after the 5th week and until the end of the 10th week of the fall and spring semesters, and from the 11th day of classes until 25th day of the summer module. It has no quality points. It does not count in the GPA, and no credits will be added to the student’s record.
- WF: (Withdrawal Fail) indicates withdrawal from the course, after the 5th week and until the end of the 10th week of the fall and spring semesters, and from the 11th day of classes until the 25th day of the summer module. It has no quality points. It does not count in the GPA, and no credits will be added to the student’s record, but is counted as repeat. A Withdrawal Form must be submitted to the Registrar’s Office.

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 3.00 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.
3. DISMISSAL
   a. Students on probation must get back into good academic standing (GPA \(\geq 3.00\)) 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 E.M.B.A.).

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), 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.

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.

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.

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.

8. WITHDRAWAL FROM COURSES
   If a student withdraws officially from a course before the withdrawal deadline set for the semester, a grade of WI, WP, or WF 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.

9. REPETITION OF COURSES
   a. Graduate courses with grades less than C may not be used toward 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. A student 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.

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 WI, WP, or WF for all the courses in progress.

11. TIME LIMIT
Students must complete all requirements for a master’s 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.

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.

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:

i. Submitting research work (a report, project, thesis, etc.) written by someone else and claiming that it is one’s own work.

ii. Paraphrasing another person’s words without citing the source.

iii. 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.

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

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

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

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 points), and to pay for 50% of one graduate credit per semester.

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.

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 B: 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 GPA.

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).

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.

Students shifting from thesis to project/course(s) option will pay for the additional courses.

The changes above shall be made at least one semester before graduation and shall carry the approval of the department/school.

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 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.

- 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.

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). The student should submit the manuscript to the thesis/project commit-
tee members prior to the announcement of the defense.

7. PROCEDURES FOR THESIS DEFENSE AND PROJECT PRESENTATION

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.

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.

7.3. Submission of Thesis and Grading
a. The candidate must provide the Library with two copies (one 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

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.

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 assistant-
ship 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 20 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.

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 by the student.

4. SELECTION CRITERIA
Graduate assistantships are granted on a competitive basis and guided by the following criteria:

a. GPA and entrance exam scores;

b. 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.
Liberal Arts Curriculum

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:
- Gain cultural breadth.
- Value ethical responsibility.
- Develop analytical/critical thinking and quantitative competence.
- Communicate effectively.

LEARNING OUTCOMES
Students will be able to:
- Recognize and value social and cultural diversity.
- Exhibit an appreciation for the arts.
- Demonstrate an appreciation of wellness and health.
- Discern and make ethically based choices.
- Demonstrate critical thinking.
- Apply analytical reasoning.
- Demonstrate aptitude in written communication.
- Demonstrate aptitude in oral communication.
- Demonstrate information literacy.

CURRICULUM
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)

<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>
<tr>
<td>ARA303</td>
<td>Arabic Grammar and Syntax</td>
<td>3</td>
</tr>
<tr>
<td>ARA310</td>
<td>Classical Arabic Rhetoric and Literary Criticism</td>
<td>3</td>
</tr>
<tr>
<td>ARA313</td>
<td>Creative Writing</td>
<td>3</td>
</tr>
<tr>
<td>ARA320</td>
<td>Pre-Islamic and Umayyad Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ARA323</td>
<td>Abbasid Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ARA324</td>
<td>Andalusian Literature</td>
<td>3</td>
</tr>
<tr>
<td>ARA325</td>
<td>Classical Prose</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>
<tr>
<td>ARA343</td>
<td>Modern Arabic Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ARA344</td>
<td>Trends in Modern Arabic Literature</td>
<td>3</td>
</tr>
</tbody>
</table>

One credit of computer applications:

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

One credit of basic health:

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>HLT201</td>
<td>Basic Health</td>
<td>1</td>
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</table>
### One credit of physical education:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<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>

### 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>Code</th>
<th>Course</th>
<th>Credits</th>
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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>
<td>3</td>
</tr>
</tbody>
</table>

#### History:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>
</tr>
<tr>
<td>HST303</td>
<td>Early Modern Europe (1450–1750)</td>
<td>3</td>
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</table>

#### Philosophy:

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

#### Religion:

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<tr>
<th>Code</th>
<th>Course</th>
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<tbody>
<tr>
<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>
</tr>
</tbody>
</table>

### Literature

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>ENG323</td>
<td>Renaissance Drama</td>
<td>3</td>
</tr>
<tr>
<td>ENG324</td>
<td>Medieval Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENG325</td>
<td>Renaissance Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ENG326</td>
<td>Restoration and Neoclassical Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENG328</td>
<td>Early Novel</td>
<td>3</td>
</tr>
<tr>
<td>ENG336</td>
<td>Romantic and Victorian Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ENG339</td>
<td>19th-Century British Novel</td>
<td>3</td>
</tr>
<tr>
<td>ENG342</td>
<td>Modernism and Beyond</td>
<td>3</td>
</tr>
<tr>
<td>ENG345</td>
<td>The 20th Century British Novel</td>
<td>3</td>
</tr>
<tr>
<td>ENG346</td>
<td>Contemporary Culture</td>
<td>3</td>
</tr>
<tr>
<td>ENG348</td>
<td>Postcolonial Anglophone Literatures</td>
<td>3</td>
</tr>
<tr>
<td>ENG351</td>
<td>Early American Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENG352</td>
<td>20th-Century American Novel</td>
<td>3</td>
</tr>
<tr>
<td>ENG354</td>
<td>Theories of Literature and Culture</td>
<td>3</td>
</tr>
</tbody>
</table>
ENG372 | Comparative and World Literatures | 3
ENG479 | Topics in Literature and Culture | 3

**Sciences**

A minimum of three and a maximum of nine credits of sciences.

| BIO201 | General Biology I | 3 |
| BIO202 | General Biology II | 3 |
| CHM201 | Chemical Principles | 3 |
| CHM202 | Analytical Chemistry | 3 |
| CSC241 | Introduction to Computing | 3 |
| ENV200 | Introduction to Environmental Science | 3 |
| MTH201 | Calculus III | 3 |
| MTH206 | Calculus IV | 3 |
| MTH207 | Discrete Structures I | 3 |
| NUT201 | Fundamentals of Human Nutrition | 3 |

**Arts**

A minimum of three and a maximum of six credits of arts.

| ARC/DES371 | History of Architecture I | 3 |
| ARC/DES372 | History of Architecture II | 3 |
| ARC/DES375 | Introduction to Islamic Art | 3 |
| ARC/DES376 | Introduction to Islamic Architecture | 3 |
| ART331 | History of Art I | 3 |
| ART332 | History of Art II | 3 |
| ART335 | Islamic Art of the Middle East | 3 |
| ART431 | Modern Art | 3 |
| COM210 | Communication Media and Society | 3 |
| COM225 | The Art of Film | 3 |
| COM242 | Introduction to the Art of Theater | 3 |
| COM249 | Theater in Lebanon and the Arab World | 3 |
| COM345 | Modern Drama | 3 |
| MUS311 | Survey of Western Music | 3 |
| MUS312 | Survey of Middle Eastern Music | 3 |

**Social Sciences**

A minimum of three and a maximum of nine credits of social sciences.

| ECO201 | Microeconomics | 3 |
| ECO202 | Macroeconomics | 3 |
| PJE201 | Cross-Cultural Communication for Peace | 3 |
| POL201 | Introduction to Political Science | 3 |
| POL231 | Introduction to Human Rights | 3 |
| PSY201 | Introduction to Psychology | 3 |
| PSY202 | Child Psychology | 3 |
| PSY335 | Consumer Psychology | 3 |
| SOC201 | Introduction to Sociology | 3 |
| SOC215 | Introduction to Gender Studies | 3 |
| SOC311 | Social Problems | 3 |
| SOC321 | Sociology of the Arab World | 3 |
| WOS311 | Issues and Debates in Feminist Theory | 3 |
| WOS313 | Women in the Arab World: Sociological Perspectives | 3 |
| WOS412 | Representations of Women in the Arts and the Media | 3 |
NOTES

1. English placement rules for freshman students:

**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.

**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.

**Entering freshman students with scores between 600 and 649** on the EEE, or its equivalent on the TOEFL, if enrolled in a B.A./B.S. program, must take ENG102 English II (worth three credits), before taking the sophomore-level English courses. They must also take three elective credits to make up for the missing credits. If the students are enrolled in an A.A./A.A.S. program, they must take ENG102 English II (worth three credits), and either ENG202 Sophomore Rhetoric, or ENG203 Fundamentals of Oral Communication.

**Entering freshman students with scores of 650 and above** on the EEE, or its equivalent on the TOEFL, if enrolled in a B.A./B.S. 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 A.A./A.A.S. 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 Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOS313</td>
<td>Women in the Arab World</td>
<td>3</td>
</tr>
<tr>
<td>HST230</td>
<td>History of Lebanon, from Antelias Man to the Ottoman Conquest</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 the Arab Peoples</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAR221</td>
<td>Developmental Arabic</td>
<td>3</td>
</tr>
<tr>
<td>SOC321</td>
<td>Sociology of the Arab World</td>
<td>3</td>
</tr>
</tbody>
</table>
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.

**FRESHMAN ARTS REQUIREMENTS**

(30 CREDITS)

- **PHL101** Introduction to Philosophy 3
- **ENG101** English I 3
- **ARA101** Arabic Essay Reading and Writing I 3
- **ART101** Introduction to Music and Art 3
- **ENG102** English II 3
- **ARA102** Arabic Essay Reading and Writing II 3
- Any two of the following science courses (8 credits) or one of the following, and one math course (7 credits):
  - **BIO101** Introduction to Biological Science 3
  - **PHY101** Introduction to Physical Science 3
  - **CHM101** General Chemistry 3
  - **MTH101** Calculus I 4
  - **MTH102** Calculus II 3
  - **PHY111** Mechanics 3
  - **BUS105** Business Mathematics 3
  - Other Freshman Math 3

**FRESHMAN SCIENCE REQUIREMENTS**

(32 CREDITS)

- **CHM101** General Chemistry 4
- **MTH101** Calculus I 3
- **PHL101** Introduction to Philosophy 3
- **ENG101** English I 3
- **ARA101** Arabic Essay Reading and Writing I 3
- **MTH102** Calculus II 3
- **PHY111** Mechanics 3
- **ART101** Introduction to Music and Art 3
- **ENG102** English II 3
- Any one of the following Social Science courses (3 credits):
  - **ECO201** Microeconomics 3
  - **ECO202** Macroeconomics 3
  - **POL201** Introduction to Political Science 3
  - **PSY201** Introduction to Psychology 3
  - **SOC201** Introduction to Sociology 3
- Free Electives (1 or 2 credits)
• Any one of the following social science courses (3 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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>

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SAR111</td>
<td>Standard Arabic I</td>
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</tr>
<tr>
<td>SAR112</td>
<td>Standard Arabic II</td>
<td>3</td>
</tr>
<tr>
<td>HST230</td>
<td>History of Lebanon, from Antelias Man to the Ottoman Conquest</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 the Arab Peoples</td>
<td>3</td>
</tr>
</tbody>
</table>
SCHOOL OF ARCHITECTURE & DESIGN
The School of Architecture & Design was officially established in 2009, following the consolidation of existing programs in fine arts, foundation studies, 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.

**MISSION**

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.

**VISION**

Its mission and values drive the vision of the School of Architecture and Design, specifically to:

1. Create a school that brings together the various design and fine arts disciplines;
2. Develop an atmosphere of collegiality, exchange of ideas, experimentation and research;
3. Provide a forum for emerging talents in the various design and fine arts fields;
4. 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.
Department of Fine Arts and Foundation Studies

PROGRAMS/DEGREES AVAILABLE

- Bachelor of Arts (B.A.) in Fine Arts
  - Minors in: Visual Arts, Fine Arts

FACULTY

Full-Time Faculty
Silia Abou Arbid, B.Arch.
Rached Bohsali, D.E.A.
Mona Jabbour, M.F.A.
Bassam Lahoud, M.F.A.
Hanibal Srouji, M.F.A.

Adjunct Faculty
Hani Asfour, M.Arch.
Bassam Geitani, D.E.S.
Samar Mougharbel, Diplome
Arwa Seifeddine, D.E.S.
The Foundation Studies program 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. This program is common to all design majors (architecture, fashion design, graphic design, interior architecture, and interior design) and should be completed in the first year of enrollment.

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.

GOALS OF CURRICULUM

Educational Objectives
The purpose of the Foundation Studies program is to offer 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:
1. Ability to conceptualize and to analyze;
2. Development of visual representational and interpretational skills;
3. Development of critical aptitude;
4. Introduction to Computer Fabrication Interfaces;
5. Initiation to basic shop skills [metal & wood];
6. Initiation to Digital Media;
7. Exposure to the cultural and aesthetic dimension of design.

CURRICULUM

Fall Semester (13 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>FND231</td>
<td>Design Studio I-A</td>
<td>3</td>
</tr>
<tr>
<td>FND232</td>
<td>Design Studio I-B</td>
<td>3</td>
</tr>
<tr>
<td>FND251 or FND261</td>
<td>Digital Media or Design Culture</td>
<td>3</td>
</tr>
<tr>
<td>ART221</td>
<td>Drawing I</td>
<td>3</td>
</tr>
<tr>
<td>FND235</td>
<td>Shop Techniques</td>
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Spring Semester (12 credits)

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<th>Description</th>
<th>Credits</th>
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</thead>
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<tr>
<td>FND233</td>
<td>Design Studio II</td>
<td>6</td>
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<tr>
<td>FND251 or FND261</td>
<td>Digital Media or Design Culture</td>
<td>3</td>
</tr>
<tr>
<td>PHO211</td>
<td>Photography I</td>
<td>3</td>
</tr>
</tbody>
</table>

COURSE DESCRIPTIONS

FND231 Design Studio I-A [2-2, 3 cr.]
This studio emphasizes on visual perception through an initiation into the different modes of two-dimensional representation and formal analysis of the basic elements of visual language, such as point, line, shape and figure/ground structure, color and the effects of light on forms. Exercises in this studio are intended to sharpen the student's perception of shapes and forms, and to train the eye and the hand in the process of interpretation and representation of two dimensional visuals. Supplemented by the analysis of major artworks,
this studio introduces a variety of techniques, exploring their possibilities and application.

**FND232 Design Studio I-B [2-2, 3 cr.]**
This studio explores the basics of plastic modeling and initiates students to critical thinking through exercises that address three-dimensional formal analysis/volumetric studies and evolve from soft materials to hard materials, with an emphasis on learning wood craftsmanship. Projects explore the syntax of 3D forms and investigate the properties of materials, structure, mass, and scale, as well as the effects of light on forms. This studio stresses the importance of craftsmanship and the different techniques of modeling requiring an active use of the workshop.

*This course is given with a co-requisite course on Shop Techniques.*

**FND233 Design Studio II [3-6, 6 cr.]**
This studio is a sequence to Studio I-A and I-B and constitutes a master studio in foundation, where the techniques and methods acquired in the previous studios are taken to a higher level in a project that emphasizes process thinking in design, effectively synthesizing between two-and three- dimensions. Projects should allow each student to develop mature works that combine analytical thinking, interpretation, and experimentation in design. Formal exercises involve structural analysis, dissection, assembly and transformation, with the objective of creating elaborate objects that move beyond simple repetition of acquired types or ‘models’, and reflect articulate thought, intuitive understanding of phenomena and deductive reasoning. Students are expected to develop their faculties of creative interpretation, using a multiplicity of design tools simultaneously, from manual crafts/model making to technical sketching and precision drafting. Rather than developing independent objects, the aim of this studio is to emphasize process in design and the generation of multiple variations on a single theme.

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

**FND235 Shop Techniques [1-o, 1 cr.]**
This course is a foundational course that initiates the student to the craft of woodworking and wood joinery, metal work, molding and casting. It is co-requisite to FND232 Design Studio I-B, and will be taught by a staff member in coordination with faculty teaching FND232 Design Studio I-B.

**FND251 Digital Media [2-2, 3 cr.]**
This studio course is composed of two parts, starting with a basic exposure to computer platforms and the primary software used in computer graphics application. The first part addresses the basics of generating and manipulating images using digital media, and covers monochrome patterns, control and mix of colors, raster images, scanning, pixel and vector graphics. The second part introduces the basic concepts of four-dimensional design, in which properties of time and movement are explored. A range of time-based media are addressed from computer-driven technologies and digital photography to interactive media. A workshop on video editing and post production is offered as integral part of this studio.

**FND261 Design Culture [3-o, 3 cr.]**
This course introduces students to the interrelationship between art and design, through the exploration of different contemporary topics. The first part of the course will be a survey of major artistic movements in the 20th century, and the second part will be a theoretical exploration of the cultural and aesthetic underpinnings of the various manifestations of contemporary design developments in the applied arts from spatial design to furniture, product, graphics, fashion and cinema.
Bachelor of Arts (B.A.) in Fine Arts

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

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

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

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

1. To seek a liberal arts education designed to acquaint the students with leading ideas and forces that steer and shape the arts and art education globally;
2. To provide students with the technical skills and knowledge of the use of materials and technologies in the making of drawing sculpture, printmaking, ceramics, multimedia and computer art, as professional artists;
3. To prepare students interested in art education for a career in teaching art;
4. To pave the way for graduate studies in studio art, art theory, and/or art education;
5. To relate the fine arts to other disciplines and practices in design, technology, science and the humanities, for inspiration and areas of interaction;
6. To help heighten the student’s sense of imagination, creative personal expression and their pursuit for excellence in today’s highly competitive art world;
7. To provide a yearly art exhibition and an accompanying art catalog featuring the student’s works, introducing them to how a professional art exhibit is carried out, while also exposing them to galleries, art critics and the public at large.

Learning Outcomes
A graduate of the Fine Arts program will be able to perform as:

8. 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 catalog mainly featuring the works of senior students;
9. An art teacher in elementary and secondary school, with a strong educational background and a distinctive art portfolio;
10. A graduate student pursuing higher education in art theory, and/or in creative studio art;
11. An illustrator contributing drawings and illustrations to books, newspapers and magazines;
12. An artist/intellectual contributing to both their own culture and to the world reservoir of creative art and art theory works;
13. An art critic;
B.A. IN FINE ARTS CURRICULUM

Students need 92 credits to graduate, which can be normally completed in 3 years (34 credits for the Liberal Arts Curriculum, 52 credits for the major, 6 credits of art electives).

YEAR I (33 CREDITS)

Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ART221</td>
<td>Drawing</td>
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<tr>
<td>ART201</td>
<td>Fundamentals of Design I</td>
<td>3</td>
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<tr>
<td>ART223</td>
<td>Perspective drawing</td>
<td>3</td>
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<tr>
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Spring Semester

<table>
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<tr>
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YEAR II (34 CREDITS)

Fall Semester

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<thead>
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<td>ART211</td>
<td>Ceramics I</td>
<td>3</td>
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<td>ART331</td>
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YEAR III (25 CREDITS)

Fall Semester

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<th>Course</th>
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<tr>
<td>ART335</td>
<td>Islamic Art of Middle East</td>
<td>3</td>
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<tr>
<td>——</td>
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Spring Semester

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<tr>
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<tbody>
<tr>
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<td>ART499</td>
<td>Senior Study</td>
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<tr>
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Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
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<tr>
<td>ART499</td>
<td>Senior Study</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Electives*</td>
<td>6</td>
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</tbody>
</table>

*LAC Electives: Refer to the list of Liberal Arts Curriculum electives.
Minor in Visual Arts

Offered only to SArD students who already have basic fine arts courses integrated in their core program requirements.

This minor will offer students deeper exposure and the possibility to expand their art skills and techniques, and to develop creativity, helping them to approach their principal disciplines from wider creative angles.

MISSION

The mission of the minor of Visual Arts is to help students to further develop as leading creative artists and thinkers in studio arts, to acquire more professional skills and supply them with a framework of applied theory.

GOALS OF CURRICULUM

Educational Objectives

1. To provide an environment in which students can engage in creative activities and develop an aesthetic awareness;
2. To provide students with the technical skills and the knowledge of the use of materials and technologies in the making of drawing, sculpture, printmaking, ceramics, multimedia, photography and computer art, as professional artists;
3. To develop various artistic methods and diverse approaches of problem solving with analytical and developmental tools;
4. To pave the way for studies in studio art, art theory, and/or art education;
5. To associate fine art programs to other related disciplines and practices, and cultural activities.

Learning Outcomes

6. Acquire skills of creative, visual and critical thinking;
7. Acquire skills of technical realization and visual communication;
8. Create and develop their artistic production;
9. Understand the inter-relational spatial organization and properties.

CURRICULUM

Mandatory Courses (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>ART222</td>
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<tr>
<td>ART334</td>
<td>Graphics</td>
<td>3</td>
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<tr>
<td>ART431</td>
<td>Modern Art</td>
<td>3</td>
</tr>
<tr>
<td>PHO212</td>
<td>Photography II</td>
<td>3</td>
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</tbody>
</table>

Elective Courses (6 credits)

To be selected from any one of the two sets below:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART341</td>
<td>Painting I</td>
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<tr>
<td>ART342</td>
<td>Painting II</td>
<td>3</td>
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<td></td>
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<tr>
<td>ART351</td>
<td>Sculpture I</td>
<td>3</td>
</tr>
<tr>
<td>ART352</td>
<td>Sculpture II</td>
<td>3</td>
</tr>
</tbody>
</table>
Minor in Fine Arts

Open to all LAU students except those in the School of Architecture & Design.

This minor will offer students in other majors the possibility to acquaint themselves with fine arts making techniques, principles and practices.

MISSION

The mission of the minor in Fine Arts is to help students to further develop as leading creative artists and thinkers in studio arts, to acquire more professional skills and supply them with a framework of applied theory.

GOALS OF CURRICULUM

Educational Objectives

1. To provide an environment in which students can engage in creative activities and develop an aesthetic awareness;
2. To provide students with the technical skills and the knowledge of the use of materials and technologies in the making of drawing, sculpture, printmaking, ceramics, multimedia, photography and computer art, as professional artists;
3. To develop various artistic methods and diverse approaches of problem solving with analytical and developmental tools;
4. To associate fine art programs to other related disciplines and practices, and cultural activities.

Learning Outcomes

5. Acquire skills of creative, visual and critical thinking;
6. Acquire skills of technical realization and visual communication;
7. Understand and analyze color and color theory;
8. Create and develop their artistic production;
9. Understand the inter-relational spatial organization and properties.

CURRICULUM

Mandatory Courses (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ART201</td>
<td>Fundamental of Design I</td>
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<tr>
<td>ART221</td>
<td>Drawing I</td>
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<tr>
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<td>3</td>
</tr>
<tr>
<td>ART431</td>
<td>Modern Art</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Courses (6 credits)

Any two courses in the ART200 range.
COURSE DESCRIPTIONS

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 [0-4, 3 cr.]
This course is an introductory course to the primary techniques of hand-made pottery its maintenance and finish, as well as the understanding, preparation, and maintenance, of clay through its various stages, and the relation of design, functional and otherwise, to the medium.

ART212 Ceramics II [0-4, 3 cr.]
This course is a focus on wheel-made pottery, stressing the relation of good functional design to useful wheel-made objects, by offering basic shapes of such pottery.
Prerequisites: 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.
Prerequisites: ART221 Drawing I.

ART223 Perspective Drawing [1 cr.]
This course is a practical studio course that investigates and applies the laws of linear perspective in the rendering of three-dimensional objects and scenes on two-dimensional surfaces.
Co-requisites: 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.
Prerequisites: 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 instructor’s consent.
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.
Prerequisites: ART341 Painting I, or instructor’s consent.

ART351 Sculpture I [0-6, 3 cr.]
This is a course facilitating the realization of three-dimensional forms by modeling, 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.
Prerequisites: ART351 Sculpture I, or instructor’s consent.

ART 380 Modern Art and Visual Culture in the Middle East [3 cr.]
This course will survey the development of Modern art in the Middle East from the end of the Nineteenth century to the Present. The survey will cover the colonial period and the process of westernization in Middle Eastern countries, as well as the formation of National schools of Fine Arts the ensuing spread of Modernism. The problematic relationship between modernity and local traditions will be examined, in addition to the particular ‘postmodern’ reactions that followed. The impact of Modernism on the formation of artistic identity in Major Middle Eastern cultures as it developed in cities such as Beirut, Cairo, Baghdad, Tehran, and Istanbul will also be discussed. The spread of artistic experience into various of aspects of visual culture, until the formation of its contemporary branches, including graphic design is also noted.
Prerequisites: ARC/DES/GRA261 Design Culture.

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.
Prerequisites: ART342 Painting II, or instructor’s consent.

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.
Prerequisites: ART441 Painting III, or instructor’s consent.

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.

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.
Prerequisites: PHO211 Photography I.

PHO222 Digital Photography I [2-2, 3cr]
Prerequisites: PHO211 Photography I.
Department of Architecture and Interior Design

PROGRAMS/DEGREES AVAILABLE

- 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

FACULTY

Full-Time Faculty
Rachid Chamoun, Ph.D.
Maroun Daccache, Ph.D.
Elie Haddad, Ph.D.
Elie Harfouche, M.S., D.E.S.
Farid Jreidini, B.A.
Abdallah Kahlil, Ph.D.
Joseph Kiprianos, Ph.D.
Nada Khoury, Ph.D.
Antoine Lahoud, D.E.S.S., D.E.A.
Cindy Kulby, M.Arch.
Antoine Romanos, B.Arch.
Marwan Zouein, Ph.D.
Jose Manuel Pagés Madrigal, Ph.D.
Pierre Hage Boutros, D.E.S.

Visiting Faculty
Jean Marc Abcarius, Diploma
Fabiano Micocci, Ph.D.
Igor Peraza, Ph.D.
Erhard Schuetzt, M.Arch.

Adjunct Faculty
David Aouad, B.Arch.
Vanessa Dammous, M.A.
Sophie Khayat, Diploma
Ayman Wehbe, Diploma
Bachelor of Science (B.S.) 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.

GOALS OF CURRICULUM

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

1. Offer students who successfully complete their studies with the Degree of Bachelor of Science in Interior Design.
3. 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.
4. 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:

1. The ability to practice interior design in various contexts and cultures.
2. Refined critical thinking and problem-solving skills.
3. The ability to identify design issues and to provide solutions.
4. The ability to design and execute projects related to interior design, renovation, restoration and other projects.
5. 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.
6. The capacity to deal innovatively with projects of different types and scales.
7. The capacity to elaborate projects with innovative structural systems, detailing, and material.
8. Flexibility to operate in a multi-disciplinary environment.
9. The ability to serve the community in organizations in both the public and private sectors.
## B.S. IN INTERIOR DESIGN CURRICULUM

### YEAR I (37 CREDITS)

#### Fall & Spring Semesters

See foundation program.

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

<table>
<thead>
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<td>ARC/DES/GRA/FAS241</td>
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### YEAR II (42 CREDITS)

#### Fall Semester (16 credits)

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<td>DES351</td>
<td>Computer Graphics I</td>
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<td>DES341</td>
<td>Technical Graphics II</td>
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<td>DES371</td>
<td>History of Architecture I</td>
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<tr>
<td>DES361</td>
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#### Spring Semester (16 credits)

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<tr>
<td>DES352</td>
<td>Computer Graphics II</td>
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<td>DES372</td>
<td>History of Architecture II</td>
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#### Summer Modules I and II (10 credits)

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### YEAR III (31 CREDITS)

#### Fall Semester (17 credits)

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<td>DES431</td>
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<td>DES432</td>
<td>Design Technology I</td>
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*Art Electives:

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<tr>
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<td>COM225</td>
<td>The Art of Film</td>
<td>3</td>
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<tr>
<td>COM241</td>
<td>Introduction to Acting</td>
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<tr>
<td>COM242</td>
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**LAC Electives: Refer to the list of Liberal Arts Curriculum electives.**
Bachelor of Arts (B.A.) 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 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.

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.

GOALS OF CURRICULUM

Educational Objectives

The purpose of the Bachelor of Arts in Interior Architecture is to:

1. Offer students who successfully complete the program with the degree of Bachelor of Science in Interior Architecture.
2. Provide a platform for graduate specializations in furniture design, product design, interior design, industrial design, fashion design and other fields in design.
3. Develop a broad base of theoretical knowledge and the necessary practical skills. Assert the role of the interior architect as a synthesizer of the different factors which affect the built environment.
4. 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:

- The ability to practice interior architecture in various contexts and cultures.
- The capacity for critical thinking, and the ability for problem solving.
- The ability to identify design issues, to conduct research, and to provide solutions.
- The ability to design and execute, projects relating to interior architecture, renovation, restoration and other related projects.
- 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.
- The capacity to deal innovatively with projects of different types and scales.
- The capacity to elaborate projects with innovative structural systems, detailing, and material.
- The ability to engage in critical thinking and problem solving.
- The capacity to operate in a multi-disciplinary environment.
- The capacity to serve the community in organizations of both public and private sectors.
GRADUATION REQUIREMENTS
A total of 139 credits is required for the B.A. in Interior Architecture, excluding the freshman year. For the B.A. in Interior Architecture with a minor, students must complete instead 147 credits (Islamic Art and Architecture), or 151 (Graphic Design).
This program may be completed in four academic years after the freshman year, including summer terms. Students may elect to extend the program over a longer period if they choose not to take any summer terms.
Students enrolled in the B.S. in Interior Design may apply to this program and typically complete its requirements in one additional year of study.

B.A. IN INTERIOR ARCHITECTURE CURRICULUM

YEAR I (37 CREDITS)
Fall & Spring Semesters
See Foundation program.

Summer Modules I and II (10 credits)

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YEAR II

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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 (8 credits)

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### YEAR IV

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<td>Islamic Arch. in the Age of Empires</td>
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<td>Art and Architecture of the Umayyads</td>
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**COURSE DESCRIPTIONS**

**FND240 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.

**FND241 Technical Graphics [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.

**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.

**Prerequisites:** DES331 Design Studio III.

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**LAC Electives: Refer to the list of Liberal Arts Curriculum electives.**
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.
Prerequisites: 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.
Prerequisites: DES341 Technical Graphics II.

DES351 Computer Graphics I [1-2, 2 cr.]
This course specifically addresses architectural applications in computer graphics for drafting of architectural plans, sections, elevations and details.
Prerequisites: 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.
Prerequisites: DES351 Computer Graphics I.

DES361 Theory I [2-o, 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-o, 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-o, 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-o, 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.

DES375 Introduction to Islamic Art (650 -1650) [3 cr.]
An introductory course to the arts of the Muslim world from the rise of Islam until the advent of the early modern period. This course will comprise a selective survey of artifacts drawn from a variety of media which represent the pinnacles of artistic accomplishment across the vast expanse of the Islamic World. Paintings, textiles, coins, ceramics, metal work, jewelry, and woodcarving will be investigated in the context of cultural history and examined in terms of their evolving forms, multiple meanings, and the development of a distinctively Islamic aesthetic. Particular emphasis will be placed on the spiritual content of Islamic art, the role of the artist in Islamic society, and the effect of religious pronouncements on the production of art.

DES376 Introduction to Islamic Architecture (650 - 1650) [3 cr.]
This course is a survey of the architectural heritage of the Islamic World from the early caliphate to the era of the Muslim superpowers of the pre-modern
times. It traces the most significant and influential edifices of the Muslim world from Spain in the west to India in the east. Monuments will be studied and analyzed in their political, religious, socio-economic, cultural, and aesthetic contexts. The course will also examine the evolution of such varied building types as mosques, madrasas, mausoleums, caravanserays, and palaces. Selected structures will be studied through a range of methodologies and the development of Islamic architecture will be analyzed from the standpoint of the manipulation of space, materials, and building technology.

**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.

*Prerequisites: 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.

*Prerequisites: 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.

*Prerequisites: DES332 Design Studio IV.*

**DES403 Furniture Design Workshop [2 cr.]**
Furniture design with emphasis on construction techniques and the understanding of various materials used in the manufacturing of furniture. Studio exercises supported by workshop training to culminate in design and realization of a project in the wood shop.

**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.

**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.

*Prerequisites: ARC332 Design Studio IV.*

**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.

*Prerequisites: 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.

*Prerequisites: DES431 Design Studio V.*
DES435 Design Studio-IAAD [4 cr.]
Investigation of a project pertaining to contemporary design issues in the Islamic World, as for example design of religious centers, housing, schools, cultural compounds, libraries, and so on, 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.

DES470 History of 20th century Architecture in the Middle East [3 cr.]
This course will trace architectural developments in the Middle East from the end of the Nineteenth century to the Present. The survey will cover the colonial period and the process of westernization in Middle Eastern countries, as well as the formation of National schools of architecture and the ensuing spread of Modernism. The problematic relationship between modernity and local traditions will be examined, in addition to the particular ‘postmodern’ reactions that followed. The impact of Modernism on urban development and the expansion of major cities such as Beirut, Cairo, Baghdad, Tehran, and Istanbul will also be discussed.
Pre-requisite ARC/DES372 History of Architecture II

DES471 Contemporary Trends [2 cr.]
Study of important design projects with analysis of their aesthetic concepts and structural innovations, focusing on particular themes and/or movements in contemporary design.

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.
Prerequisites: 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.
Prerequisites: 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 7th and 8th centuries. Monuments and artifacts are examined in terms of their purpose and meaning, and are interpreted in the context of cultural history. Particular attention is afforded to the formation of Islamic art and to the discernment of what can be regarded as “Islamic” in the visual art forms of Islam. This involves exploring cross-cultural dialogues in the Levant in the first century of Islam, and the attempt to blend elements from the west and east in the framework of the new faith.
Prerequisite: ARC/DES372 History of Architecture II

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.

Prerequisites: DES375 Introduction to Islamic Art.

DES480 Topics in Interior Architecture [3 cr.]
This series of courses will deal with specific topics of current importance, and which are not covered in the Interior Architecture & Design curriculum. The topics and themes dealt with will vary depending on contemporary problematic with the purpose of enriching students’ exposure to these issues. Every course in this series will be assigned a subtitle once the theme has been defined and listed in the course offering.

Prerequisites: DES332 Interior Design Studio IV.

DES481 Construction Documents [2-4, 4 cr.]
This course is a preparation of 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.

Prerequisites: DES432 Design Studio VI.

DES482 Regional Architecture [2 cr.]
Analytical & 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 and other factors on the development of regional architecture in the Nineteenth and early Twentieth century.

DES483 Regional Architecture II [3 cr.]
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.

DES484 Furniture Design [2-o, 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-o, 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-o, 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.

Prerequisites: 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.
Prerequisites: DES432 Design Studio VI.

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.
Prerequisites: 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.
Prerequisites: DES432 Design Studio VI.

DES595 International Studio-IAAD [1-4, 3 cr.]
This studio offers an opportunity for 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.
Prerequisites: ARC432 Design Studio VI.

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.

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.
Prerequisites: DES432 Design Studio VI.

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.

DES595 International Studio-IAAD [1-4, 3 cr.]
This studio offers an opportunity for 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.
Prerequisites: ARC432 Design Studio VI.
Bachelor of Architecture (B.Arch.)

The professional degree of Bachelor of Architecture enables 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 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 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.

CURRICULUM GOALS

Educational Objectives
The purpose of the Bachelor of Architecture is to:
1. Offer students, who successfully complete their studies, the professional degree of Bachelor of Architecture.
2. Provide a platform for graduate specializations in architecture, urban planning, urban design, landscape design, digital design, and other fields in design.
3. Develop a broad base of theoretical knowledge and the necessary practical skills.
4. Assert the role of an architect as a synthesizer of the different factors which affect the built environment.
5. 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:
1. The ability to practice architecture in various contexts and cultures.
2. A capacity for critical thinking and problem solving skills.
3. The ability to identify design issues, conduct research, and to provide solutions.
4. An understanding of the urban dimension of architecture and the consequences of building activities on the environment.
5. The capacity to deal innovatively with projects of different types and scales.
6. The capacity to elaborate projects with innovative structural systems, detailing and material.
7. The capacity to operate in a multi-disciplinary environment.
8. The capacity to serve the community in organizations of both public and private sectors.
## B.Arch. Curriculum

### Year I (37 Credits)

#### Fall & Spring Semesters
See Foundation program.

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

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### Year II

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### Year IV

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Urban Planning I 3

### ARC
History and Theory Elective* 2

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#### YEAR V

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<td>ARC 472</td>
<td>Classical Art and Architecture</td>
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<td>Architecture of the Renaissance</td>
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<td>ARC 475</td>
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<td>ARC 376</td>
<td>Introduction to Islamic Architecture</td>
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<td>ARC 381</td>
<td>Architectural Photography</td>
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<td>ARC585</td>
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<td>PKG572</td>
<td>Packaging Dynamics and Permeation</td>
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<td>Packaging Types and Processes</td>
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<td>PKG574</td>
<td>Paper and Paperboard Packaging</td>
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<td>Corrugated Packaging</td>
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<td>PKG576</td>
<td>Rigid Plastic Packaging</td>
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<td>PKG577</td>
<td>Pac. for Food, Drug and Cosmetics</td>
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<td>Food Preservation Packaging</td>
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PKG586      | Computer Graphics for Packaging                  | 3       |
PKG588      | Packaging Applications                           | 3       |
PKG589      | Special Topic: in Packaging Design               | 3       |

***LAC Electives: Refer to the list of 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.

### GOALS OF CURRICULUM

#### Learning Outcomes

Graduates of the minor in Digital Media program will acquire the following skills:

1. The ability to use the computer to produce elaborate print and screen presentations for the design profession.
2. The ability to use computers to generate a complete set of working drawings for construction.
3. The ability to develop 3D computer generated models and animations for the design profession.
4. The ability to use specific software as a means to architectural design problem-solving.

### CURRICULUM

#### Required Courses (11 credits):

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<tbody>
<tr>
<td>GRA302</td>
<td>Advanced Computer Graphics</td>
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<tr>
<td>GRA484</td>
<td>Web Design</td>
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<tr>
<td>GRA487</td>
<td>3D Animation Techniques</td>
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</tr>
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</table>
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.

**CURRICULUM GOALS**

**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:

1. An understanding of the role and breadth of the arts in the various Islamic cultures.
2. Basic knowledge of the historic development of Islamic Art and Architecture in the Islamic World, and the major highlights of these developments.
3. Development of basic analytical and interpretative skills in examining the Islamic Art traditions, and in formulating contemporary interpretations of these rich traditions.

**CURRICULUM**

**Required Courses (14 credits):**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>Introduction to Islamic Art</td>
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<td>ARC376</td>
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<td>ARC405</td>
<td>Design Workshop–IAAD</td>
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<tr>
<td>ARC435</td>
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<td>ARC595</td>
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Two electives (4 credits) to be selected from the following courses:

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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<tbody>
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<td>ARC475</td>
<td>Islamic Architecture in the Age of Empire</td>
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<td>ARC476</td>
<td>Art and Architecture of the Mamluks</td>
<td>2</td>
</tr>
<tr>
<td>ARC477</td>
<td>Art and Architecture of the Umayyads</td>
<td>2</td>
</tr>
<tr>
<td>ARC478</td>
<td>The Decorative Arts of Islam</td>
<td>2</td>
</tr>
</tbody>
</table>
COURSE DESCRIPTIONS

**ARC311 Building Systems I [3-0, 3 cr.]**
This course is an introductory course to the basic laws of equilibrium, covering forces on particles, bodies and structures or assemblage of elements, simple algebraic applications of the equations of equilibrium in 1-D and 2-D with free body diagram analysis. The course will include experimental investigation of the stability of structures such as solid object, beams, frames, trusses, and simple buildings, and the different ways to support gravity and other loads by vertical transfer and lateral transfer of forces. It will also include an introduction to the concept of compressive and tensile uni-axial stresses in structural members and to internal forces in beams, shear and moment diagram concepts, with empirical investigation of beam bending.
Prerequisites: MTH102 Calculus II, and PHY111 Mechanics.

**ARC312 Building Systems II [3-0, 3 cr.]**
This course is an introduction of the basic concepts of internal stresses and strains inside structural members, solid bodies and the limit states for strength and deformation. Experimental investigation of the different types of stresses and the resulting deformations are covered. This course will also make use of computer software to model internal and external behavior of structural elements and assemblages of structural elements. It will serve to develop a physical understanding of the interrelationship of material properties, structural dimensions, and structural behavior and safety through the numerical simulation of the behavior of typical designs using simple computer packages.
Prerequisites: MTH102 Calculus II, and PHY111 Mechanics.

**ARC331 Design Studio III [3-6, 6 cr.]**
This course builds upon and extends the theoretical knowledge gained in the foundation studios through a concrete application of conceptual and perceptual analysis to problems of small and medium scale in design, and the exploration of the limits and means of developing concepts into architectural form. The studio will emphasize on the development of representational tools in translating ideas into architectural drawings and models, specifically stressing on the importance of drawing as a design tool.
Prerequisites: ARC231 Design Studio I-A, ARC232 Design Studio I-B, ARC233 Design Studio II-A, and ARC234 Design Studio II-B.

**ARC332 Design Studio IV [3-6, 6 cr.]**
This course further elaborates the process of theoretical investigation of space with emphasis on the communication of ideas through different representational models and tools. The course covers the study of small to medium scale projects, with emphasis on the basic principles of spatial design. References and case studies of canonical works in modern design may serve as a theoretical background in the continuing development of a theoretical foundation. 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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. 
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: ARC361 Theory I.

ARC371 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.

ARC372 History of Architecture II [2-0, 2 cr.]
This course will trace the developments in architecture from Neo-Classicism in the 18th and 19th centuries, to the full development of modern architecture in the 20th century, by examining the seminal projects and buildings that characterized these developments and their subsequent transformations in post-modernism, deconstruction and later trends.

ARC373 History of Landscape Design [2-0, 2 cr.]
This course is an overview of the historical developments of landscape design with a survey of the ideas, principles and practical considerations behind the major landscape design cases under study, from the classical to the modern period.

ARC375 Introduction to Islamic Art (650-1650) [3 cr.]
An introductory course to the arts of the Muslim World from the rise of Islam until the advent of the early modern period. This course will comprise a selective survey of artifacts drawn from a variety of media which represent the pinnacles of artistic accomplishment across the vast expanse of the Islamic World. Paintings, textiles, coins, ceramics, metal work, jewelry, and woodcarving will be investigated in the context of cultural history and examined in terms of their evolving forms, multiple meanings, and the development of a distinctively Islamic aesthetic. Particular emphasis will be placed on the spiritual content of Islamic art, the role of the artist in Islamic society, and the effect of religious pronouncements on the production of art.

ARC376 Introduction to Islamic Architecture (650-1650) [3 cr.]
This course is a survey of the architectural heritage of the Islamic World from the early caliphate to the era of the Muslim superpowers of the pre-modern times. It traces the most significant and influential edifices of the Muslim world from Spain in the west to India in the east. Monuments will be studied and analyzed in their political, religious, socio-economic, cultural, and aesthetic contexts. The course will also examine the evolution of such varied building types as mosques, madrasas, mausoleums, caravanserays, and palaces. Selected structures will be studied through a range of methodologies and the development of
Islamic architecture will be analyzed from the standpoint of the manipulation of space, materials, and building technology.

**ARC381 Architectural Photography [2 cr.]**
Advanced photography course emphasizing specific photographic techniques, lighting and composition, dealing with architectural and design subjects.

**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.

**Prerequisites: 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.

**Prerequisites: 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.

**Prerequisites: ARC312 Building Systems II.**

**ARC421 Building Technology I [2-o, 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-o, 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.

**Prerequisites: ARC332 Design Studio IV.**

**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.

**Prerequisites: ARC431 Design Studio V.**
ARC470 History of 20th century Architecture in the Middle East [3cr]
This course will trace architectural developments in the Middle East from the end of the 19th century to the Present. The survey will cover the colonial period and the process of westernization in Middle Eastern countries, as well as the formation of National schools of architecture and the ensuing spread of Modernism. The problematic relationship between modernity and local traditions will be examined, in addition to the particular ‘postmodern’ reactions that followed. The impact of Modernism on urban development and the expansion of major cities such as Beirut, Cairo, Baghdad, Tehran, and Istanbul will also be discussed.
Prerequisite ARC/DES372 History of Architecture II

ARC471 Contemporary Trends [2-o, 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-o, 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-o, 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.

*Prerequisites:* 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.

*Prerequisites:* 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 7th and 8th centuries. Monuments and artifacts will be examined in terms of their purpose and meaning, and will be interpreted in the context of cultural history. Particular attention will be afforded to the issue of the formation of Islamic art and 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.

*Prerequisites:* 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.

*Prerequisites:* 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:* 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.

*Prerequisites:* 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.

*Prerequisites:* 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.

Prerequisites: 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.

Prerequisites: 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.

Prerequisites: 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.

Prerequisites: ARC531 Design Studio VII.

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.

Prerequisites: 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.

**Prerequisites:** Any two of the following courses: ARC451 Digital Modeling, ARC452 Computer Animation, ARC454 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.

**Prerequisites:** ARC432 Design Studio VI.

**ARC580 Topics in Architecture [3cr]**
This series of courses will deal with specific topics of current importance, and which are not covered in the Architecture curriculum. The topics and themes dealt with will vary depending on contemporary problematic with the purpose of enriching students’ exposure to these issues. Every course in this series will be assigned a subtitle once the theme has been defined and listed in the course offering.

**Pre-requisite 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.

**Prerequisites:** 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.

**Prerequisites:** 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.

**Prerequisites:** 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 (U.S.A., 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.

**Prerequisites:** 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.

**Prerequisites:** ARC432 Design Studio VI.

**ARC595 International Studio-IAAD [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.
*Prerequisites: 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.
*Prerequisites: ARC532 Design Studio VIII.*

**ARC631 Design Studio IX [3-4, 5 cr.]**
This studio will concentrate on a design problem addressing the urban dimen-
sion in architecture. Projects in this studio will analyze problems of practical rel-
evance 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.
*Prerequisites: 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 I.*
Department of Design

PROGRAMS/DEGREES

- Bachelor of Science (B.S.) in Graphic Design
- Bachelor of Arts (B.A.) in Fashion Design

Minor in: Advertising

FACULTY

Full-Time Faculty
Randa Abdel Baki, M.F.A.
Tarek Khoury, M.F.A.
Ruth Maalouf, M.A.
Melissa Sinclair, M.F.A.
Yasmine Taan, Ph.D.
Jason Steel, M.A.

Visiting Faculty
Gokhan Numanoglu, M.A.
Ali Kays, D.E.S.

Adjunct Faculty
Maria Bahous, M.A.
GOALS OF CURRICULUM

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

B.S. IN GRAPHIC DESIGN CURRICULUM

The curriculum consists of 118 credits.

YEAR I (37 CREDITS)

Fall & Spring Semesters (27 credits)
See foundation program.

Summer Modules I and II (10 credits)

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YEAR II (34 CREDITS)

Fall Semester (12 credits)

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<td>GRA431</td>
<td>History of Graphic Design</td>
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Summer Modules I and II (6 credits)

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YEAR III

• Digital Emphasis (29 credits)

Fall Semester (15 credits)

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Spring Semester (14 credits)

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• Print Emphasis (29 credits)

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Summer Modules I and II (6 credits)

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YEAR IV

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*C Graphic Design Electives:

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COURSE DESCRIPTIONS

FND240 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.

FND241 Technical Graphics [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.

GRA301 Intermediate Computer Graphics [2-2, 3 cr.]
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: GRA251 Introduction to Computer Graphics, GRA233 Design Studio II-A, GRA234 Design Studio II-B.

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.

Prerequisites: 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 placed upon the vocabulary of the print industry and hands-on experience through the study of printing specifications, quotations and pricing, file preparation and professional printing.

Prerequisites: GRA352 Graphic Design II.

GRA341 Art of Calligraphy [2-2, 3 cr.]
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: ART222 Drawing II.

GRA345 Silkscreen and Binding [2-2, 3cr.]
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.]
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.

Co-requisites: GRA431 History of Graphic Design.

GRA352 Graphic Design II [2-2, 3cr.]
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 is 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: GRA301 Intermediate Computer Graphics, GRA351 Graphic Design I

Co-requisites: GRA431 History of Graphic Design.

GRA411 Advanced Typography [2-2, 3cr.]
This advanced 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.
Prerequisites: GRA352 Graphic Design II, MKT201 Introduction to Marketing.
Co-requisites: 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.
Prerequisites: GRA352 Graphic Design II, GRA431 History of Graphic Design.
Co-requisites: GRA411 Advanced Typography, GRA462 Graphic Design Seminar.

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 copy write. This course is taught through projects, discussions and critiques.
Prerequisites: GRA352 Graphic Design II, GRA451 History of Graphic Design.

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 placed 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.
Prerequisites: GRA302 Advanced Computer Graphics, GRA484 Web Design.
Co-requisites: GRA462 Graphic Design Seminar.

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.
Prerequisites: 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.
Prerequisites: GRA301 Intermediate Computer Graphics.

GRA488 Graphic Design Portfolio [1-0, 1cr]
This portfolio course provides students with the guidance and advising needed to develop their individual graphic design portfolio, CV, cover letter, references sheet and business card. Emphasis is placed on the development of a cohesive, well-presented printed and digital portfolio as a personal marketing tool. This course is taught through critiques, discussions and lectures.
Prerequisites: GRA482 Motion Design and GRA451 Graphic Design III.

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.
Prerequisites: 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-requisites: GRA486 Advanced Interactive Design
MISSION
The mission of the Bachelor of Arts in Fashion Design in collaboration with ELIE SAAB is to educate designers to engage various fashion design tasks with versatility, and to develop their conceptual skills as synthesizers of different influences and cultural trends, and to cater for the fashion needs of evolving contexts, with social and environmental awareness.

GOALS OF CURRICULUM

Educational Objectives
The objectives of the Bachelor of Arts in Fashion Design in collaboration with ELIE SAAB are to provide for the development of inspiring artifacts in various fashion fields, and in response to different cultural settings. The program offers a comprehensive range of courses that foster creativity and expand the educational, cultural and artistic knowledge and skills of students. The program also aims at developing students’ practical training in design, in addition to developing their knowledge of management of design products in a global world.

Learning Outcomes
1. Research, analyze and interpret fashion trends to design and produce successful fashion products in a constantly evolving field;
2. Engage in aesthetic experiments that negotiate between abstract concepts and critical inquiry;
3. Propose innovative fashion products of diverse types for various contexts, and especially for regional markets;
4. Operate in multidisciplinary environments that bring together consultancy, manufacture, production and business expertise;
5. Design with ecological awareness in a world of limited resources;
6. Serve the community as sensitive leaders guided by ethical, social and moral values.

B.A. IN FASHION DESIGN CURRICULUM

The curriculum of the Bachelor of Arts in Fashion Design in collaboration with ELIE SAAB is composed of the common foundation year and the core curriculum, in addition to Liberal Arts Curriculum requirements. The total number of credits required for the Bachelor of Arts in Fashion Design is 130.

YEAR I (37 CREDITS)

Fall & Spring Semesters (27 credits)
See foundation program.

Summer Modules I and II (10 credits)

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### YEAR II (37 CREDITS)

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### YEAR III (38 CREDITS)

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### YEAR IV

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*Fashion Design Electives

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<td>FAS424</td>
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COURSE DESCRIPTIONS

**FND240 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.

**FND241 Technical Graphics [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.

**FAS331 Fashion Design I [2-2, 5 cr.]**
This studio incorporates design research and concept development in the production of garments and accessories for casual wear. Drawing methods and design techniques are introduced within this studio along with fundamentals of apparel construction. Students are expected to develop a wide knowledge base while working with different classifications of casual wear clothing. The studio will also introduce sketching, flat patternmaking, experimentation with a select range of protein, cellulose and synthetic textiles and materials, in addition to specking and trend reporting in the process of developing a series of casual garments.

Prerequisites: FND233 & FND234
Co-requisites: FAS341 & FAS351. Passing Grade: C.

**FAS332 Fashion Design II [2-6, 5 cr.]**
This is an advanced course in the technical construction of garments and accessories. Advanced pattern drafting, sewing techniques, challenging fabric choices that elaborate on knitwear yarns and textures, extensible/stretch fabrics and micro fabrics, hybridization of textiles in structure, texture and connections, knitwear hand and machine techniques (yarn technology, card punching for flat and circular machines), crocheting, embroidery and embellishment of fabrics such as quilting, cartridge pleating and trapunto are all explored in this course, which will give students a thorough knowledge of their craft. The course is also supported by guided tours of couture houses to observe how sophisticated garments are produced.

Prerequisites: FND241.
Co-requisites: FAS331 & FAS351. Passing Grade: C.

**FAS341 Construction I [2-2, 3 cr.]**
This studio introduces the hands-on craft and skill of basic patternmaking and the methods of measuring and sizing in translating design concepts into 3D form. Topics covered include: textile technology, layout drafting and cutting, draping using forms to achieve basic garment components—bodices (tops and jackets), dresses, skirts, trousers, seams, lining and hems, lace-up, zippers and buttons, darts and pleats, sleeves and cuffs, collars—as well as hand and machine sewing and finishing. Visits will be made to local factories to observe the commercial process of producing garments on a mass quantity scale.

Prerequisites: FND233 & FND234
Co-requisites: FAS342 & FAS352. Passing Grade: C.

**FAS342 Construction II [2-2, 3 cr.]**
This advanced course in the technical construction of garments and accessories. Advanced pattern drafting, sewing techniques, challenging fabric choices that elaborate on knitwear yarns and textures, extensible/stretch fabrics and micro fabrics, hybridization of textiles in structure, texture and connections, knitwear hand and machine techniques (yarn technology, card punching for flat and circular machines), crocheting, embroidery and embellishment of fabrics such as quilting, cartridge pleating and trapunto are all explored in this course, which will give students a thorough knowledge of their craft. The course is also supported by guided tours of couture houses to observe how sophisticated garments are produced.

Prerequisites: FAS341
Co-requisites: FAS332 & FAS352. Passing Grade: C.

**FAS351 Digital Studio I [2-2, 3 cr.]**
This course is an introduction to the digital tools of design and construction of fashion garments using specialized software such as Adobe Illustrator and
Adobe Photoshop. The course addresses concept development and concept board preparation and covers the technical aspects of flat pattern drafting with specific computer aided software. Students are expected to prepare basic flat patterns for garment construction, to address sizing and fitting issues, to develop digital studies for print and woven textile finishes and to explore textile repeats, color theory and color scheming and fashion illustration within this course. The final requirement should include the preparation of a complete reference document.

Prerequisites: FND251
Co-requisites: FAS331 & FAS341. Passing Grade: C.

FAS352 Digital Studio II [1-2, 2 cr.]
This advanced digital studio course further develops the students’ skills in using advanced fashion design software and 3D modeling and animation programs to enhance the representation and visualization of their design concepts, and to realize complete digital patternmaking and catwalk simulations.

Prerequisites: FAS351
Co-requisites: FAS332 & FAS342. Passing Grade: C.

FAS371 History of Fashion I [1-2, 2 cr.]
This course is a survey of the development of apparel and accessory design through different periods, with a particular emphasis on the modern period, beginning with industrialization. Social, cultural, economic and industrial factors are discussed along with major art movements that contributed to the development of fashion, and as precursors of contemporary fashion trends.

Prerequisites: FND271. Passing Grade: D

FAS372 History of Fashion II [2-0, 2 cr.]
This course explores in detail the contemporary developments in fashion design around the world, with a focus on major names and brands in fashion design. Students are also required in this course to develop their personal research in a selected area of fashion design, and to make presentations on the concepts, techniques, and particularities of their selected research topic.

Prerequisites: FAS371. Passing Grade: D.

FAS421 Lingerie and Swimwear [2-2, 3 cr.]
This studio course hones the skills of design in women lingerie, male underwear and swimwear apparel categories examining the fundamental construction methods and industry specific materials related to each specialty. From design research to concept development and fabrication, submissions include a series of projects, each featuring a completed piece in each specialty wear.

Prerequisites: FAS341. Passing Grade: C.

FAS422 Textile Design [2-2, 3 cr.]
This twofold studio course combines a comprehensive historical and contemporary survey of woven and knitted fabrics used in apparel with a study of textile science, covering the design and production techniques of protein fibers, cellulose fibers and synthetic fibers and their interaction with finishes such as dyes, pigments, muds and ochre. Students learn to identify fiber and fabric properties and to evaluate their performance. The yarn system, weaving and knitting as well as finishes—printed, painted, felted, dyed or woven patterns are investigated as sources for creative applications in fashion design. Students submit a research paper that analyses the methodology explored and techniques used in their projects, demonstrating the developmental phases of various experimental structural and textural outputs in the design and production of a textile piece.

Prerequisites: FAS341. Passing Grade: C.

FAS423 Leatherwear Design [2-2, 3 cr.]
This studio covers the design of leather wear and plastic materials, and identifies accessory categories incorporating advanced levels of design research [markets, suppliers, construction methods, manufacture] and development of various leather products from concept to execution. Submissions expand from original concept to garment/accessory development, patternmaking and fabrication of the finished apparels.

Prerequisites: FAS341. Passing Grade: C.
FAS424 Sportswear Design [2-2, 3 cr.]
This studio covers design and construction of sports apparel by addressing ergonomics/biophysics as a science concerned with human morphological factors in design. The studio will focus on the study and conception of sports apparel in tune with human anatomy, and will introduce the study of human physiological functions such as thermoregulatory responses, comfort sensation, effects of extreme bodily movements and climate insulation on the design of such apparel. The course will also survey technically-enhanced fabrics used in the production of sportswear. Final requirements of this studio include the design and fabrication of a sports apparel featuring elaborate silhouette study as well as innovative use of performance material to cater for optimal fit, aesthetic need and climate suitability.
Prerequisites: FAS341. Passing Grade: C.
FAS431 Fashion Design III [2-6, 5 cr.]
This advanced design studio builds on proficiencies acquired in the previous year, and incorporates design research to further develop the design and manufacture skills in a garment in either casual wear or haute couture. Students are here given the option to concentrate on one of these two areas of emphasis: Casual Wear or Haute Couture. The studio requires fluency in concept development using fashion design software, and encourages students to develop their personal design philosophy and to broaden their visual vocabulary in order to propose innovative products for various markets. Final submission requirements in this studio include the development of a finished garment with its shopping report and a trend analysis paper. A juried fashion show is organized at the end of the term to evaluate the students work. Prerequisites: FAS432
Co-requisites: FAS441. Passing Grade: C.
FAS432 Fashion Design IV [2-4, 4 cr.]
This studio is an experimental studio where students are given the opportunity to experiment in the design and production of attires that cross boundaries and re-define contemporary fashion design. Theater and performance costumes may also be used to offer students the opportunity to analyze and interpret fashion in a variety of media including pop culture, film, theater, and performance art. In order to further develop their technical skills in this process of creative design experimentations, students will be supported by professional technicians in the production of their experimental garments.
Prerequisites: FAS431
Co-requisites: FAS482. Passing Grade: C.
FAS441 Fashion Illustration [2-2, 3 cr.]
This studio introduces the techniques of fashion illustration and hand-rendering of fabrics and finishes in various media. Working from live models, students are encouraged to develop their own personal style of figure illustration. Lectures and demonstrations are used as supplementary material to help students articulate their ideas visually.
Prerequisites: FND240 & ART221
Co-requisites: FAS341. Passing Grade: C.
FAS461 Final Project Seminar [2-0, 2 cr.]
This course is a seminar that focuses on the discussion of various topics of research, leading to the individual selection of particular topics for the final year project. The course will include a number of lectures, as well as theoretical discussions on issues of relevance to contemporary fashion design, which would serve as a basis in the elaboration of the final project.
Co-requisites: FAS431. Passing Grade: C.
FAS481 Fashion Apprenticeship [1-2, 2 cr.]
This is an instructor-directed, industry sponsored apprenticeship workshop in which students are asked to broaden their critical skills by deepening their technical knowledge in the production of apparel in one of the following options: Shoe Design, Accessory-Jewelry Design, Millinery Design, Bridal Wear Design, Hair & Make-up Design. This workshop allows students to understand the underlying principles and particular techniques of construction that the production of specialty items requires. A series of focused workshops are offered in this course to initiate students to various construction techniques and methodologies.
Prerequisites: FAS332. Passing Grade: D.
**FAS482 Fashion Workshop I [1-2, 2 cr.]**
This course presents an opportunity to invite well-known, international designers to give an intensive one or two-week workshop on an area of interest and relevance to contemporary design in this field. Invited tutors would select the theme and project to be developed during this short workshop.
*Co-requisites: FAS432. Passing Grade: C.*

**FAS531 Fashion Design V [2-4, 4 cr.]**
This studio explores the fashion apparel and textile industry from an ecological, social, and economic viewpoint, giving students the opportunity to take the issues of environmental sustainability, human rights, and economic sustainability into consideration in the development of their design work. Students are expected to produce creative designs that use lower carbon footprint, and to explore the possibilities of developing nature-friendly, sustainable solutions in fashion design.
*Prerequisites: FAS432
Co-requisites: FAS532 - Passing Grade: C*

**FAS532 Fashion Design VI [2-4, 4 cr.]**
**Emphasis Options: Casual Wear or Haute Couture**
This studio is the capstone of the fashion design curriculum. The research developed in the Final Project Seminar is carried through design development and production during this final studio, under the direction of one chosen advisor. Students are evaluated on the design and presentation of their full garment line, along with the submission of an individual portfolio that includes their personal design philosophy. The students’ final project is presented as an individual fashion show, organized by the student at the end of the term, and juried by a group of experts.
*Prerequisites: FAS531. Passing Grade: C.*

**FAS561 Fashion Business [2-0, 2 cr.]**
This course covers a series of lectures on the various aspects of successfully running a fashion business. Students in this course study fashion marketing, merchandising, retailing, import and export, product development, brand and marketing management, trend spotting, media and public relations. Students are expected to research and assess the production costs and sale power of various fashion products in global trade, with a focus on fashion and trend forecasting, competitive retail analysis and offering successful management solutions.
*Prerequisites: FAS431 & MKT201. Passing Grade: D.*

**FAS581 Internship [0-200, 2 cr.]**
The internship requires students to complete a minimum of 200 hours of work at a fashion design house or fashion related industry, in order to supplement their design knowledge with hands-on practical training covering the full process of garment production.
*Prerequisites: FAS432. Passing Grade: P.*

**FAS582 Fashion Workshop II [1-2, 2 cr.]**
This second workshop is also an opportunity to invite well-known, international designers to give an intensive one or two-week workshop on an area of interest and relevance to contemporary design in this field. Invited tutors would select the theme and project to be developed during this short workshop.
*Co-requisites: FAS531. Passing Grade: C.*
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.

GOALS OF CURRICULUM

Educational 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
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
5. Develop and integrate the artistic component of advertising

CURRICULUM

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<thead>
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<th>Required courses (18 credits)</th>
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<tbody>
<tr>
<td>COM213 Introduction to Public Relations</td>
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<td>COM222 Introduction to Radio/TV/Film</td>
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<td>MKT201 Introduction to Marketing</td>
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<td>MKT301 Promotion Management &amp; Integrated Marketing Communications</td>
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<td>GRA431 History of Graphic Design</td>
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The School of Arts and Sciences is the heart of the Lebanese American University and its oldest school. The school is the home of the liberal arts core, which is central to the mission of the university, and is the major provider of service courses to all LAU schools.

LAU’s pioneering and reputable programs in computer science, international affairs, molecular biology, in addition to its history in arts, humanities and communication, makes it the leader in the field—a fact that the university’s graduates and their employers keep reaffirming.

The school houses the Departments of Communication Arts, Computer Science and Mathematics, Education, English Language Instruction, Humanities, Natural Sciences, and Social Sciences. The school administers the Institute for Diplomacy and Conflict Transformation, the Institute for Media Training and Research, the Institute for Migration Studies, the Institute for Peace and Justice Education, the Software Institute, the Teacher Training Institute, and the Early Childhood Center.

MISSION

In keeping with the mission of the university, the School of Arts and Sciences offers a rigorous and high quality education that emphasizes student research and inquiry while upholding the tradition of liberal arts education. The school strives to promote excellence in teaching and to nurture creative, scholarly endeavors. The school aims at developing informed citizens who will leave a mark as scholars and leaders in a complex word.

VISION

The objectives of the School of Arts and Sciences are to:

1. Integrate and synthesize knowledge across disciplines;
2. Encourage and foster research, discovery and independent inquiry;
3. Prepare competent, inquisitive, life-long learners, and critical thinkers;
4. Inculcate an understanding of scientific and quantitative, as well as qualitative, principles;
5. Foster respect for diverse viewpoints;
6. Celebrate diversity;
7. Respond to local and global needs by modifying existing programs and developing new ones that are in line with the needs and requirements of the communities that it serves;
8. Instill high standards of integrity and ethics.

INTERIM DEAN
Nashat Mansour, Ph.D.

ASSOCIATE DEANS
Haidar Harmanani, Ph.D.
Bassel Salloukh, Ph.D.

ASSISTANT DEANS
Nahla Bacha, Ph.D.
Sandra Rizk-Jamati, Ph.D.
Department of Communication Arts

PROGRAMS/DEGREES AVAILABLE

- Bachelor of Arts (B.A.) in Communication Arts
  Minor in: Advertising

CHAIR
Mona Majdalani, Ph.D.

ASSOCIATE PROFESSORS
Derek Bouse, Ph.D.
Mona Knio, Ph.D.
Raed Mohsen, Ph.D.

ASSISTANT PROFESSORS
Dima Dabbous, Ph.D.
Yasmine Dabbous, Ph.D.
Lina Nassar, Ph.D.

INSTRUCTORS
Tony Farjallah, M.A.
Anna Fahr, M.A.
Preethi Nallu, M.A.
Alireza Khatami, M.F.A.
Bachelor of Arts (B.A.) in Communication Arts

The explosion of mass communications systems and fast-paced technological advances serves 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 moviemakers.

Students learn to write, edit, lay out, 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.

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.

GOALS OF CURRICULUM
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 audiovisual 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:

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

Students must complete, besides the Liberal Arts Curriculum, 42 credits of major courses, which are split into core and emphasis requirements.

### RADIO/TV/FILM

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### JOURNALISM

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### THEATER

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SUGGESTED ELECTIVES

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SUGGESTED THREE-YEAR STUDY PLAN

JOURNALISM EMPHASIS:

Year I

Fall Semester (16 credits)

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Spring Semester (16 credits)

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Year II

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Year III

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### THEATER EMPHASIS:

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Minor in Advertising

MISSION
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.

GOALS OF CURRICULUM

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;
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;
5. Develop and integrate the artistic component of advertising.

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

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<tr>
<td>COM213</td>
<td>Introduction to Public Relations</td>
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<td>COM222</td>
<td>Introduction to Audiovisual Media</td>
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<td>MKT201</td>
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<td>MKT301</td>
<td>Promotion Management &amp; Integrated Marketing</td>
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<tr>
<td>GRA431</td>
<td>History of Graphic Design</td>
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<tr>
<td>GRA432</td>
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COURSE DESCRIPTIONS

COM205 Performance for TV & Film [3-o, 3 cr.]
Application of the principles of acting in performing for TV and film. Exercises in announcing, interviewing, hosting TV programs, performing in commercials and acting in dramatic TV programs and films.

COM206 Desktop Publishing [3-o, 3 cr.]
Theory and exercises in editing, transferring and merging text, graphics and photographs. Use of computer programs to create, design and print various types of publications as well as websites and blogs.
Prerequisites: Knowledge of computer operations.

COM213 Public Relations [3-o, 3 cr.]
This course is an introduction to the principles and practices of public relations in light of the new changes in media. Students will learn the process of public relations through the examination of various types of PR campaigns, with emphasis on specific case-studies. They will also engage in the organization and implementation of a PR event.
Prerequisites: ENG101 English I.

COM214 News Writing and Reporting [3-o, 3 cr.]
This class covers the principles of reporting and writing for various media – newspapers, magazines and online (including blogging and Twitter). It explores the structural and conceptual characteristics of journalistic reports. The class covers news sources, field work/assignments, research, interview techniques, news values and journalistic writing.
Prerequisites: ENG101 English I.

COM215 Photojournalism [3-o, 3 cr.]
This course teaches students to gather and process conventional photography and video/computer pictorial material for print media, the Internet and television. It includes practical laboratory and field exercises.

COM218 Arabic News Writing and Reporting [3-o, 3 cr.]
This class covers the principles and practices of news gathering and writing for the Arabic-language media. It introduces students to different styles of writing for news agencies, newspapers, magazines, radio, TV and the web.
Prerequisites: ARA201 Appreciation of Arabic Literature or any ARA2–3 equivalent course.

COM222 Introduction to Audiovisual Media [3-o, 3 cr.]
This course examines the distinctive characteristics of different media forms and guidelines for choosing which medium or combination of media is best for a given communication project. Through a series of exercises, the course covers the conceptual underpinnings as well as offering an experiential tour of the creative language, aesthetics, and basic techniques of audiovisual production.
Prerequisites: ENG101 English I, or concurrently.

COM224 Social Media [3-o, 3 cr.]
The course focuses on how the Internet, social media and mobiles contribute to the way media are designed, created, shared and understood. It explores how the social, economic, historical and technological influence new media and how such media shape journalism, politics, business/marketing and civic engagement. Students learn to create content optimized for the Internet and to build social media campaigns.
Prerequisites: ENG101 English I.

COM225 The Art of Film [3-o, 3 cr.]
This course is a study of the formal and aesthetic fundamentals of the film medium. It covers the viewing and written analysis of important films.
Prerequisites: ENG102 English II.

COM235 Studio Television Production [3-o, 3 cr.]
This course is an introduction to the principles and practices of single and multiple camera television production.
Prerequisites: COM222 Introduction to Audiovisual Media.
COM236 Radio Production [3-o, 3 cr.]
This course covers radio production as a means of communication, creation and influence. The evolution and history of radio will be covered alongside its influence on media coverage. Students will go through the various basic principles, steps and positions in radio production from the initial creation of an idea to the final recorded (or live) products in various formats, ready to broadcast on FM or DAB, internet radio or podcasts.

COM237 TV/Film Workshop [3-o, 3 cr.]
This course deals with the different technical aspects of broadcast and film production. The course may be repeated and taken more than once when content differs.
**Prerequisites:** COM235 Studio TV Production.

COM238 Drama Workshop [1-3, 3 cr.]
Various aspects of theatrical activities including actor’s skills, designing scenery, properties, lighting, sound, costumes, make-up etc. This course may be taken more than once with different content.

COM241 Introduction to Acting [3-o, 3 cr.]
An introduction to the actor’s technique and performer’s skills, exploring the elements necessary to begin training as an actor. Focus on physical and vocal exercises, improvisations, and scene study.

COM242 Introduction to the Art of Theater [3-o, 3 cr.]
This course is an introduction to the theater, from its ancient origins to the present, its history, literature, genres, styles, and other related topics.
**Prerequisites:** ENG101 English I or concurrently.

COM244 Introduction to Technical Stagecraft [3-o, 3 cr.]
This course is an introduction to the development of the theatre house, from its ancient formation to the present. Students will explore technical theatre production processes including theatre design principles, scenery construction, fundamentals of stage mechanics, lighting and sound, along with house management procedures.

COM247 Theater in Performance [3-o, 3 cr.]
This course is about experiencing theatre making processes leading to a major theatre production. Student participation will include taking major roles as researchers, actors, or team members in key positions as actors, managers, designers or operators under the direction of a faculty member.

COM249 Theater in Lebanon and the Arab World [3-o, 3 cr.]
This course covers the world of Lebanese Theatre in particular and Arab Theatre in general from its earliest founders, troupes and organizations until its modern festivals and avant-garde productions.

COM251 Interpersonal Communication [3-o, 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.

COM314 Investigative Journalism [3-o, 3 cr.]
This course is an overview of the principles, skills and tools of investigative reporting for audiovisual, print and online media. Students review and critique major investigative pieces. They learn the history of investigative reporting and its role in society, culture and politics, study various investigative techniques, become familiar with key online and offline sources and ultimately produce a multi-platform investigative story.
**Prerequisites:** COM214 News Writing and Reporting.

COM315 Journalism Editorial Desk [3-o, 3 cr.]
The course focuses on the knowledge and skills required in a specific journalistic field or topic. The course may be repeated, and taken more than once, if the topics differ.
**Prerequisites:** COM214 Reporting and Writing for News Media.
COM319 Media and Society [3-o, 3 cr.]
This course studies forms of mass media communications as elements/products of cultural, political, and economic processes. The approach is interdisciplinary, drawing on a variety of theories and methods of media studies and analysis such as semiotics, linguistics, philosophy, political economy, and cultural studies.
*Prerequisites: ENG202 Sophomore Rhetoric.*

COM324 History and Theory of Film [3-o, 3 cr.]
This course is a review of selected cinematic milestones and foundational theories in the history of motion pictures, with an emphasis on their relevance/contribution to contemporary cinema.
*Prerequisites: COM225, The Art of Film.*

COM326 Writing for TV and film [3-o, 3 cr.]
This course covers the principles and techniques of writing for film and TV genres and formats.
*Prerequisites: COM222 Introduction to Audiovisual Media.*

COM329 Media Law & Ethics [3-o, 3 cr.]
This course explores legal and ethical principles, case studies, and mass media regulation in Lebanon. It includes comparative regional and international perspectives both with respect to major legal and ethical issues related to the media.
*Prerequisites: ENG202 Sophomore Rhetoric.*

COM330 Arab and International Media [3-o, 3 cr.]
This course covers the development and particularities of some Arab and world communication systems and examines the effect of such history and practice on media content. Media systems are examined as reflections of their socio-cultural environment and as agents affecting society at the same time.
*(Given in English)*
*Prerequisites: COM319 Media and Society.*

COM332 Editing [3-o, 3 cr.]
Use of computer technology to edit video footage in creating documentary and dramatic TV programs.
*Prerequisites: COM235 Studio TV Production or concurrently.*

COM335 Advanced TV Production [3-o, 3 cr.]
This course covers advanced TV production in the studio and on location. Emphasis is on planning and directing dramatic programs (sit-coms and similar complex TV formats).
*Prerequisites: COM235 Studio TV Production and COM326 Writing for TV and Film concurrently.*

COM337 Creative Dramatics [3-o, 3 cr.]
A study of the principles and methods of developing original dramatizations with children. Play and values of creative playing will be examined. Students will be guided on a journey in imagining, storytelling, improvising, and reflecting on human experiences through dramatic exercises.
*Prerequisites: ENG102 English102 or consent of instructor.*

COM342 Play Production I [3-o, 3 cr.]
This is a 3-credit theatre production course that extends over two consecutive semesters. During the first semester students study the structure of a one-act play, the theories and methods of staging and participate in as many stage productions on campus as possible. Whilst during the second semester students direct a one-act play and produce a prompt book which documents the work process in detail.
*Prerequisites: COM242 Introduction to the Art of Theatre.*

COM343 Advanced Acting Techniques [3-o, 3 cr.]
This course covers the advanced scene study. It includes multiple scenes to clarify character development throughout a single script.
*Prerequisites: COM241 Introduction to Acting.*
COM345 Modern Drama [3-o, 3 cr.]
The development of the contemporary theater from Ibsen to the present, as studied in selected European and American plays. 
*Prerequisites: COM242 Introduction to the Art of Theater or consent of instructor.*

COM361 Broadcast Journalism [3-o, 3 cr.]
This course introduces students to the production of news programs for broadcast media, covering stages such as news gathering, writing, shooting, editing and distribution. It introduces students to the technologies used in production and transmission, and helps them think critically about the process involved. 
*Prerequisites: COM222 Introduction to Audiovisual Media; Com 329 Media Law and Ethics; COM214 Reporting and Writing for News Media or COM235 Studio TV Production.*

COM422 Journalism Workshop [3-o, 3 cr.]
This class is an intensive, computer-assisted, writing-oriented course in a laboratory setting. It involves the production of online and print versions of the LAU Tribune, the university’s student newspaper. Students learn hands-on about the different phases of online journalism production from newsroom management to reporting, writing, editing, multimedia uses, blogging and online distribution and promotion. 
*Prerequisites: COM314 Investigative Journalism and COM361 Broadcast Journalism.*

COM427 Corporate Video/Film Production [3-o, 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. 
*Prerequisites: COM235 Studio TV Production.*

COM428 Narrative and Documentary Film [3-o, 3 cr.]
This course covers the principles and techniques of both narrative and documentary film production. Students will plan, write, direct, and produce a short film. 
*Prerequisites: COM255 Art of Film, COM326 Writing for TV& Film & COM335 Advanced TV Production.*

COM442 Play Production II [3-o, 3 cr.]
This course is a study of the theatrical major movements. It covers the analysis and the structure of the three-act play, and involves the production of a full-length play and the documentation of the process in a prompt book. 
*Prerequisites: COM342 Play Production I & COM343 Advanced Acting or concurrently.*

COM451 Media Research Methods [3-o, 3 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 towards the development and writing of a research paper. Students examine qualitative (mainly discourse analysis and semiotics) and quantitative (e.g. content analysis and audience surveys) methods of media research employed when studying the media (texts, audiences, and production processes). 
*Prerequisites: COM319 Media and Society, senior standing*

COM488 Special Topics in Media [3-o, 3 cr.]
This course offers an in-depth analysis of relevant topics in the field of audiovisual media, theatre and journalism. It can be repeated with change of content/topic, and students can take it more than once. 
*Prerequisites: English 202 (Sophomore Rhetoric or consent of instructor)*

COM499 Internship [1-o, 1 cr.]
The Internship course covers professional communication work, in an off-campus setting, appropriate to the student’s emphasis program, in order to provide experience not available in the curriculum. Gaining an insider’s perspective, students will explore the organizational set-up and operations of media institutions. They will compare those existing settings with the media & communication principles they acquired during their coursework. Students may work for print or broadcast (Radio/TV) media, as well as in theater, film or media research institutions. 
*Prerequisites: 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.
Bachelor of Science (B.S.) in Computer Science

The Bachelor of Science in Computer Science 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. In addition to developing computer science skills, the program helps the students develop an understanding of the human and social aspects of computer systems, and how computer science relates to other disciplines.

The B.S. in Computer Science at LAU is accredited by the Computing Accreditation Commission of ABET, Inc., the recognized accreditor of college and university programs in applied science, computing, engineering, and technology. ABET accreditation demonstrates a program’s commitment to providing its students with a quality education. Accreditation is a voluntary, peer-review process that requires programs to undergo comprehensive, periodic evaluations. The evaluations, conducted by teams of volunteer professionals working in industry, government, academe, and private practice within the ABET disciplines, focus on program curricula, faculty, facilities, institutional support, and other important areas.
One of the key elements of ABET accreditation is the requirement that programs continuously improve the quality of education provided. As part of this continuous improvement requirement, programs set specific, measurable goals for their students and graduates, assess their success at reaching those goals, and improve their programs based on the results of their assessment.

In addition to providing colleges and universities a structured mechanism to assess, evaluate, and improve their programs, accreditation also helps students and their parents choose quality college programs, enables employers and graduate schools to recruit graduates they know are well-prepared, and is used by registration, licensure, and certification boards to screen applicants.

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.

GOALS OF CURRICULUM

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.
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.

### 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>Intro. 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>
<td>3</td>
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### Computer Science Electives (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CSC323</td>
<td>Digital Systems Design</td>
<td>3</td>
</tr>
<tr>
<td>CSC412</td>
<td>Introduction to Bioinformatics</td>
<td>3</td>
</tr>
<tr>
<td>CSC420</td>
<td>Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>CSC435</td>
<td>Computer Security</td>
<td>3</td>
</tr>
<tr>
<td>CSC440</td>
<td>Advanced Object Oriented Programming</td>
<td>3</td>
</tr>
<tr>
<td>CSC443</td>
<td>Web Programming</td>
<td>3</td>
</tr>
<tr>
<td>CSC450</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CSC458</td>
<td>Game Programming</td>
<td>3</td>
</tr>
<tr>
<td>CSC460</td>
<td>Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>CSC495</td>
<td>IT Project Management</td>
<td>3</td>
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</table>

### Mathematics (12 credits)

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

### Mathematics Elective (3 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<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 (may be repeated)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Science Requirements (3 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIO200</td>
<td>Basic Biology</td>
<td>3</td>
</tr>
<tr>
<td>CHM200</td>
<td>Essentials of Chemistry</td>
<td>3</td>
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</table>

### Other Requirements (3 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC480</td>
<td>Social and Professional Issues in Computing</td>
<td>3</td>
</tr>
</tbody>
</table>
SUGGESTED THREE-YEAR STUDY PLAN

YEAR I

Fall Semester (16 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC243</td>
<td>Intro. 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>
</tr>
<tr>
<td>PED2—</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>———</td>
<td>Free Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Spring Semester (16 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<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>
</tr>
<tr>
<td>CSC322</td>
<td>Computer Organization Lab</td>
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</tr>
<tr>
<td>ENG203</td>
<td>Fundamentals of Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>LAC Arts Elective</td>
<td>3</td>
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</table>

YEAR II

Fall Semester (14 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC310</td>
<td>Algorithms and Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>CSC375</td>
<td>Database Management Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSC326</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>MTH305</td>
<td>Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>ETH201</td>
<td>Moral Reasoning</td>
<td>1</td>
</tr>
<tr>
<td>HLT201</td>
<td>Basic Health</td>
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</table>

Spring Semester (16 credits)

<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>———</td>
<td>LAC Philosophy, Religion, History Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

YEAR III

Fall Semester (15 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC599</td>
<td>Capstone Project</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>MTH—</td>
<td>Mathematics Elective</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>LAC Literature Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Spring Semester (15 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC490</td>
<td>Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CSC497</td>
<td>Parallel Programming for Multicore and Cluster Systems</td>
<td>3</td>
</tr>
<tr>
<td>MTH307</td>
<td>Discrete Structures II</td>
<td>3</td>
</tr>
<tr>
<td>CSC—</td>
<td>Technical Elective</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>Science Elective</td>
<td>3</td>
</tr>
<tr>
<td>CSC491</td>
<td>Professional Experience</td>
<td>1</td>
</tr>
</tbody>
</table>

1 Choose either BIO200 or CHM201.

2 Internship must be completed in the summer following the registration. It is equivalent to 120 hours of professional experience spread over a summer term.
Master of Science (M.S.) 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 in-depth study in four concentration areas.

GOALS OF CURRICULUM

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:

5. Have an understanding of the advanced concepts in computer algorithms design, and analysis;
6. Be armed with a broad computer science education that includes theory, computer systems, hardware principles, computer networks, and software engineering;
7. 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;
8. Have a deep understanding of one of the following computer science areas: Theory and Algorithms, Computer Systems, Hardware Principles and Computer Networks, and Software Engineering;
9. 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;
10. Develop the skills of oral presentation, research documentation and technical writing, and independent study.

ADMISSION REQUIREMENTS
In addition to the admission requirements that are explicitly stated in the academic rules for graduate programs, CSC310 Algorithms and Data Structures is a required course from all students who have finished a non-computer science degree and apply for the M.S. in Computer Science at LAU. It 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.
**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.

**PROJECT OR THESIS OPTION (3 OR 6 CREDITS)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC798</td>
<td>Project Option</td>
<td>3</td>
</tr>
<tr>
<td>CSC799</td>
<td>Thesis Option</td>
<td>6</td>
</tr>
</tbody>
</table>

**ELECTIVES FROM FOUR CONCENTRATION AREAS (12 OR 15 CREDITS)**

### Algorithms, Theory & Computational Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<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>
</tr>
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</table>

### Systems

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC721</td>
<td>Transaction Processing Systems</td>
<td>3</td>
</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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</table>

### Hardware and Networks

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CSC731</td>
<td>High Performance Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>CSC732</td>
<td>ULSI Testing</td>
<td>3</td>
</tr>
<tr>
<td>CSC733</td>
<td>Embedded Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSC734</td>
<td>Advanced Computer Networks</td>
<td>3</td>
</tr>
</tbody>
</table>

### Software Engineering

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

(advanced topics in computer science (in any of the four concentration areas; may be repeated) 3
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.

GOALS OF CURRICULUM
Educational Objectives
The Mathematics program provides the students with a strong background in the skills of logic, reasoning, critical thinking, and relevant technology. More particularly, the curriculum:

1. Covers the traditional aspect of mathematics major and supplements it with courses covering contemporary mathematical topics;
2. Provides students with a broad exposure to those fields of mathematics that are useful in the physical sciences, engineering, and others;
3. Provides specific courses designed for students who plan to become teachers of mathematics (in case they plan to complete a Teaching Diploma);
4. 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 fundamental 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, and others;
8. Relate the different branches of mathematics;
9. Demonstrate knowledge of areas of applied mathematics such as dynamical systems, numerical analysis, graph theory, and others;
10. Perform symbolic and numeric computations using appropriate mathematical tools.

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.
Mathematics Core Courses (27 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<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>MTH301</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MTH305</td>
<td>Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MTH311</td>
<td>Abstract Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MTH401</td>
<td>Real Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>MTH403</td>
<td>Introduction to Complex Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MTH409</td>
<td>Introduction to Topology</td>
<td>3</td>
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</table>

Choose one of:

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH410</td>
<td>Real Analysis 2</td>
<td>3</td>
</tr>
<tr>
<td>MTH411</td>
<td>Advanced Topics in Abstract Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>

Mathematics Electives Choose 6 courses (18 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH206</td>
<td>Calculus IV</td>
<td>3</td>
</tr>
<tr>
<td>MTH302</td>
<td>Geometry</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>Nonlinear Dynamics and Chaos</td>
<td>3</td>
</tr>
<tr>
<td>MTH308</td>
<td>Number Theory</td>
<td>3</td>
</tr>
<tr>
<td>MTH309</td>
<td>Graph Theory</td>
<td>3</td>
</tr>
<tr>
<td>MTH310</td>
<td>Set Theory</td>
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</tr>
<tr>
<td>MTH400</td>
<td>Advanced Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MTH410</td>
<td>Real Analysis 2</td>
<td>3</td>
</tr>
<tr>
<td>MTH411</td>
<td>Advanced Topics in Abstract Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MTH498</td>
<td>Topics in Mathematics</td>
<td>3</td>
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Computer Science Requirement (3 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC243</td>
<td>Object Oriented Programming</td>
<td>3</td>
</tr>
</tbody>
</table>

Restricted Electives (total 6 credits)

Students are required to complete six credits numbered 200 and above from actuarial science, natural sciences, computer science, engineering, and business. The following is a suggested list of courses: MTH402, MTH406, MTH408, CSC245, BIO200, ENV200, CHM200, PHY301, FIN321, ITM211, CIE200, CIE202, ELE201, ELE202; INE302, MEE241 and MEE320.

Free Electives: 4 credits

SUGGESTED THREE-YEAR STUDY PLAN

YEAR I

Fall Semester (16 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<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>CSC201</td>
<td>Computer Applications</td>
<td>1</td>
</tr>
<tr>
<td>CSC243</td>
<td>Object Oriented Programming</td>
<td>3</td>
</tr>
<tr>
<td>ARA2-/-3-</td>
<td>Arabic Language/Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENG202</td>
<td>Sophomore Rhetoric</td>
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Spring Semester (16 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MTH301</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MTH305</td>
<td>Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MTH--</td>
<td>Math Elective</td>
<td>3</td>
</tr>
<tr>
<td>ENG203</td>
<td>Fundamentals of Oral Communications</td>
<td>3</td>
</tr>
<tr>
<td>ETH201</td>
<td>Moral Reasoning</td>
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</tr>
<tr>
<td>————</td>
<td>Restricted Elective</td>
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</table>
**YEAR II**

**Fall Semester (16 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>MTH311</td>
<td>Abstract Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MTH401</td>
<td>Real Analysis</td>
<td>3</td>
</tr>
<tr>
<td>HLT201</td>
<td>Basic Health</td>
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</tr>
<tr>
<td>MTH--</td>
<td>Math Elective</td>
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</tr>
<tr>
<td>———</td>
<td>LAC Arts Elective</td>
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</tr>
<tr>
<td>———</td>
<td>Free Elective</td>
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**Spring Semester (15 credits)**

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<tr>
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<tbody>
<tr>
<td>MTH403</td>
<td>Introduction to Complex Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MTH409</td>
<td>Introduction to Topology</td>
<td>3</td>
</tr>
<tr>
<td>MTH--</td>
<td>Math Elective</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>LAC Social Science Elective</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>LAC Literature Elective</td>
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</table>

**YEAR III**

**Fall Semester (14 credits)**

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>MTH410</td>
<td>Real Analysis 2</td>
<td>3</td>
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<tr>
<td>MTH--</td>
<td>Math Elective</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>Free Elective</td>
<td>1</td>
</tr>
<tr>
<td>———</td>
<td>LAC Philosophy, Religion, History Elective</td>
<td>3</td>
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<tr>
<td>———</td>
<td>LAC Elective</td>
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</tr>
<tr>
<td>FED2--</td>
<td>Physical Education</td>
<td>1</td>
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**Spring Semester (15 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH--</td>
<td>Math Elective</td>
<td>3</td>
</tr>
<tr>
<td>MTH--</td>
<td>Math Elective</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>Math Elective</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>Restricted Elective</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
</tbody>
</table>
GOALS OF CURRICULUM

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.

Core Courses (9 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>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 Abstractions</td>
<td>3</td>
</tr>
<tr>
<td>MTH207</td>
<td>Discrete Structures I</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Courses (9 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC310</td>
<td>Algorithms and Data Structure</td>
<td>3</td>
</tr>
<tr>
<td>CSC320</td>
<td>Computer Organization</td>
<td>3</td>
</tr>
<tr>
<td>CSC326</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSC375</td>
<td>Database Management Systems</td>
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<tr>
<td>CSC430</td>
<td>Computer Networks</td>
<td>3</td>
</tr>
<tr>
<td>CSC490</td>
<td>Software Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>
GOALS OF CURRICULUM

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:
3. Exhibit an understanding of the nature of mathematics
4. Reason with abstract concepts;
5. Follow complex mathematical arguments and develop their own mathematical arguments.

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

Mathematical Core Requirements (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<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>MTH301</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>

Mathematics Electives (9 credits)
Students ought to complete successfully at least one course from each of the following lists of courses:

List 1:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<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>MTH301</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MTH311</td>
<td>Abstract Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MTH401</td>
<td>Real Analysis I</td>
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</table>

List 2:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH206</td>
<td>Calculus IV</td>
<td>3</td>
</tr>
<tr>
<td>MTH304</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MTH306</td>
<td>Nonlinear Dynamics &amp; Chaos</td>
<td>3</td>
</tr>
<tr>
<td>MTH307</td>
<td>Discrete Structures II</td>
<td>3</td>
</tr>
<tr>
<td>MTH309</td>
<td>Graph Theory</td>
<td>3</td>
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</tbody>
</table>
Minor in Actuarial Studies

GOALS OF CURRICULUM

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.

CURRICULUM REQUIREMENTS

The following courses totaling 21 credits are recommended for the minor in actuarial sciences. This minor can be taken by students from any major.

Mathematical Requirements (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH201</td>
<td>Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MTH305</td>
<td>Probability and Statistics</td>
<td>3</td>
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Business Requirements (6 credits)

<table>
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<tr>
<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>ECO201</td>
<td>Microeconomics</td>
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<tr>
<td>ECO202</td>
<td>Macroeconomics</td>
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</table>

Actuarial Mathematics Courses (9 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MTH402</td>
<td>Theory of Interest</td>
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<tr>
<td>MTH406</td>
<td>Life Contingencies I</td>
<td>3</td>
</tr>
<tr>
<td>MTH408</td>
<td>Life Contingencies II</td>
<td>3</td>
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</tbody>
</table>
COURSE DESCRIPTIONS

UNDERGRADUATE COMPUTER SCIENCE

CSC201 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.

CSC241 Introduction to Computing [3-0, 3 cr.]
This course provides a lengthy first coverage where students would acquire a holistic understanding of computing, and an appreciation of technology’s impact on society. Topics include binary values and number systems, data representation, gates and circuits, computing components, problem solving and algorithm design, low-level and high-level programming languages, abstract data types and algorithms, operating systems, file systems and directories, information systems, artificial intelligence, simulation and other applications, computer networks, the world wide web, and limitations of computing.

CSC243 Introduction to Object Oriented Programming: [3-0, 3 cr.]
This course introduces the fundamental concepts, and techniques, of programming and problem solving, from an object-oriented perspective. Topics include the introduction to computer systems (hardware, software, compilation, execution), fundamental programming constructs, (variables, primitive data types, expressions, assignment), program readability, simple I/O, conditional constructs, iterative control structures, structured decomposition, method call and parameter passing, basic program design using algorithms, algorithm 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. 
Prerequisites: CSC243 Introduction to Object Oriented Programming.

CSC310 Algorithms and Data Structures [3-0, 3 cr.]
This course presents the fundamental computing algorithms and data structures, with emphasis on design and analysis. Topics include the asymptotic analysis of upper and average complexity bounds, the best, the average, and the worst, case behaviors. Recurrence relations, sets, hashing and hash tables, trees and binary trees (properties, tree traversal algorithms), heaps, priority queues, and graphs (representation, depth- and breadth-first traversals and applications, shortest-path algorithms, transitive closure, network flows, topological sort). The course also covers the sorting algorithms and performance analysis which include Mergesort, Quicksort and Heapsort. Moreover, the course details the fundamental algorithmic strategies (divide-and-conquer approach, greedy, dynamic programming and backtracking). It also includes an introduction to NP-completeness theory. 
Prerequisites: CSC245 Objects and Data Abstraction and MTH207 Discrete Structures I.

CSC320 Computer Organization [3-0, 3 cr.]
The course gives an overview of the history of the digital computer. Topics include 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-requisites: CSC245 Objects and Data Abstraction, MTH207: 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.

Co-requisites: CSC320 Computer Organization.

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 an introduction to embedded systems.

Prerequisites: CSC243 Introduction to Object Oriented Programming.

CSC326 Operating Systems [3-0, 3 cr.]
The course introduces the fundamentals of operating systems design and implementation. Topics include operating system components, process scheduling; inter-process 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 and fundamental concepts of file systems.

Prerequisites: CSC245 Objects and Data Abstraction and CSC320 Computer Organization.

CSC372 Database Analysis, Design, and Management [3-0, 3 cr.]
This course covers the theory of Database Management Systems within the context of its utilization in an information system application. The primary focus is on relational databases. Concepts include design, optimization, and implementation. Security and data integrity in centralized and distributed systems are also addressed. SQL is employed as a vehicle during the development of applications.

Prerequisites: CSC242 Introduction to Computer Programming.

CSC375 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.

Prerequisites: CSC245 Objects and Data Abstraction and MTH201 Calculus III.

CSC412 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.

Prerequisites: CSC310 Data Structures & Algorithms.
CSC420 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. Also, the course tackles parallel processing. 
Prerequisites: CSC323 Digital Systems Design.

CSC430 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. 
Prerequisites: 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, security 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. 
Prerequisites: CSC326 Operating Systems.

CSC440 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. 
Prerequisites: CSC245 Objects and Data Abstraction.

CSC443 Web Programming [3-0, 3 cr.]
This course introduces advanced concepts in web programming, and focuses on the development of dynamic web pages that incorporate both client-side and server-side programming. Topics include web scripting using JavaScript, VBScript, and PHP, as well as Java Beans, and server-side components such as CGI, ASP, and PHP, and the installation and configuration of web servers. The course also discusses accessing databases through web applications. Hands-on experience is part of the class. 
Co-requisites: CSC375 Database Management Systems.

CSC447 Parallel Programming for Multicore and Cluster Systems [3-0, 3 cr.]
This course provides an introduction to parallel programming with a focus on multicore architectures and cluster programming techniques. Topics include relevant architectural trends and aspects of multicores, writing multicore programs and extracting data parallelism using vectors and SIMD, thread-level parallelism, task-based parallelism, efficient synchronization, program profiling, and performance tuning. Message-passing cluster-based parallel computing is also introduced. The course includes several programming assignments to provide students first-hand experience with programming, and experimentally analyzing and tuning parallel software. 
Prerequisites: CSC310 Algorithms and Data Structures; CSC326 Operating Systems.
CSC450 Computer Graphics [3-0, 3 cr.]
This course is an introduction to computer graphics algorithms, programming methods, and applications. The course focuses on the fundamentals of two and three dimensional raster graphics, scan-conversion, clipping, geometric transformations, computational geometry, computer-human interfaces, animation, and visual realism.
Prerequisites: CSC310 Algorithms and Data Structures.

CSC458 Game Programming [3-0, 3 cr.]
This course introduces the software technologies related to game development, as well as the art and design principles needed to create compelling games. Topics include game history and taxonomy, game play design and the components of a video game experience, software architecture for games, intro to 3D graphics and stereoscopic computer graphics, hardware architecture of contemporary video game platforms, human physical and perceptual limits, game artificial intelligence, multiplayer game design, game physics and intro to real time shading effects.
Prerequisites: CSC310 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.
Prerequisites: 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, as well as 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, the documentation and technical writing and the use of CASE tools.
Co-requisites: 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-requisites: 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 and activities required to ensure the success of IT projects (training, job redesign, communication, etc.). Students are expected to
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 covers the basic heuristic optimization techniques in computing. It describes a variety of heuristic search methods including serial simulated annealing, Tabu search, genetic algorithms, ant algorithms, de-randomized evolution strategy, and random walk. Algorithms are 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-o, 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 also 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-o, 3 cr.]
This course is an introduction to distributed systems, distributed system models, network architecture and protocols, inter-process 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-o, 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-o, 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-o, 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-o, 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-o, 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, distributed-memory computer systems, parallel algorithms and software and architectural issues for efficient parallel processing.

CSC732 ULSI Testing [3-o, 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.

**CSC737: Pervasive Computing and Wireless Networking [3-0, 3 cr.]**
The course 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.]**
The course covers 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.]**
The course covers 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 and 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, organization management and planning. Methods unique to special development approaches, such as object-oriented testing, will also be described.
CSC794 Software Quality Assurance [3-o, 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-o, 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-o, 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 systems, 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-o, 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-o, 3 cr.]
This course covers 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 conics (ellipse, hyperbola, parabola). Prerequisites: MTH101 Calculus I.
MTH111 Basic Mathematics [3-O, 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.

MTH201 Calculus III [3-O, 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 test, 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.

Prerequisites: MTH102 Calculus II.

MTH206 Calculus IV [3-O, 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.

Prerequisites: MTH201 Calculus III.

MTH204 Differential Equations [3-O, 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.

Prerequisites: 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. 
Prerequisites: MTH201 Calculus III.

MTH306 Non-Linear Dynamics and Chaos [3-0, 3 cr.]
This course covers the topics of iteration, fixed and periodic points, graphical analysis of iteration, stable and unstable orbits, attracting and repelling periodic points, iterations of a quadratic family, Julia sets, Mandelbrot sets, fractals, and chaos. 
Prerequisites: MTH201 Calculus III.

MTH307 Discrete Structures II [3-0, 3 cr.]
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.

MTH308 Number Theory [3-0, 3 cr.]
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.
Prerequisites: MTH201 Calculus III.

MTH310: Set Theory [3-0, 3 cr.]
Operations on sets and families of sets, ordered sets, transfinite induction, axiom of choice and equivalent forms, and ordinal and cardinal numbers. 
Prerequisites: MTH207 Discrete Structures I.

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. 
Prerequisites: MTH207 Discrete Structures I, and junior standing.

MTH400: Advanced Linear Algebra [3-0, 3 cr.]
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. 
Prerequisites: MTH301 Linear Algebra

MTH401 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-Stieltjes integral. 
Prerequisites: MTH207 Discrete Structures I, MTH301 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.
*Prerequisites: MTH102 and junior standing*

**MTH403: Introduction to Complex Analysis [3-0, 3 cr.]**
Topics covered are: The algebra of complex numbers, analytic functions, complex integration, Cauchy’s integral formula, singularities, residues, poles, Taylor and Laurent series.
*Prerequisites: MTH401 Real Analysis I*

**MTH406 Life Contingencies I [3-0, 3 cr.]**
This course covers single life functions, the measurement of mortality, life annuities, life insurance, net annual premiums, and net level premium reserves.
*Prerequisites: MTH305 Probability and Statistics, MTH402 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.
*Prerequisites: MTH406 Life Contingencies I.*

**MTH409 Introduction to Topology [3-0, 3 cr.]**
Topics covered are: general topological spaces, connectedness, and compactness, continuity, and product spaces.
*Prerequisites: MTH401 Real Analysis I.*

**MTH410: Real Analysis 2 [3-0, 3 cr.]**
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.
*Prerequisites: MTH206 Calculus IV and MTH401 Real Analysis I*

**MTH411: 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.
*Prerequisites: MTH311 Abstract Algebra*

**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.]**
*Prerequisites: senior standing.*

**UNDERGRADUATE STATISTICS**

**STA205 Biostatistics [3-0, 3 cr.]**
This course introduces the statistical design and analysis techniques needed to perform pharmaceutical research, and evaluate clinical data. It includes designing epidemiologic and clinical studies, evaluating diagnostic testing procedures, interpreting the use of statistical data in Medical Literature, and using frequently used statistical methods of data analysis. Emphasis is placed on the statistical concepts, and their application to the critical appraisal of clinical and experimental data.

**STA302 Introduction to Statistics in the Social Sciences [3-0, 3 cr.]**
This course is an introduction to statistical analysis for the social and behavioral sciences. It covers both descriptive and inferential statistics. Descriptive statistics covers ways of representing data graphically, measures of central tendency and dispersion, the normal distribution and other types of standard scores as well as an introduction to probability and sampling. The inferential statistical tests addressed in the course cover ratio, ordinal and categorical variables. The course deals with inferential tests involving one, two or more means, proportions, and correlations. It also considers the basic analysis of variance models (ANOVA), linear regression models and non-parametric tests such as chi-square. Students will develop sufficient conceptual understanding to select from a variety of statistical tests appropriately. In addition, students will learn to use a statistical software package to enter data and conduct a range of statistical analyses.
Department of Education

DEGREES OFFERED
- Bachelor of Arts (B.A.) in Education with two emphases:
  1. Early Childhood Education
  2. Elementary Education
- Master of Arts (M.A.) in Education
- Teaching Diploma (T.D.) in:
  1. Elementary or E.C.E. Education (for students holding or working for a B.A. in Education)
  2. Intermediate or Secondary Education (for students holding, or working for a B.A./B.S. in a different major)
  3. Professional Development (in Elementary Education/E.C.E. for holders of B.A./B.S. in a different major)

CHAIR
Bahous, Rima, Ed.D.

PROFESSOR
Majdalani, Mona, Ph.D.

ASSOCIATE PROFESSORS
Nabhani, Mona, Ed.D.
Oueini, Ahmad, Ed.D.
Osta, Iman, Ph.D.

ASSISTANT PROFESSOR
Kaloustian, Garene, Ph.D.
MISSION
In line with the mission of the School of Arts and Sciences, the Department of Education at LAU strives for excellence in the preparation of qualified educators committed to evidence-based practices, respect for diversity, and ongoing personal and professional development.

GOALS OF CURRICULUM
Program Objectives
Education graduates will:
1. Acquire research-based pedagogical content knowledge with particular attention to the needs of diverse learners;
2. Design effective learning situations and communicate knowledge in many modalities, drawing on up-to-date educational technologies;
3. Continually evaluate effects of their choices and actions on the learning process, collaborate productively in a group setting, and actively engage in opportunities to grow professionally.

Program Learning Outcomes
4. Analyze critically the contents and organization of modern school curricula;
5. Apply theories of learning to instructional decision-making and curriculum design, with attention to diverse learners' characteristics;
6. Apply theories and techniques of student learning assessment;
7. Utilize a variety of communication techniques suitable for learners in a non-native language, including written, verbal, nonverbal and media-based communication;
8. Design and manage effective learning environments;
9. Engage in a continuous cycle of planning, implementing, reflecting and improving professional practice;
10. Demonstrate collaborative and ethical professional practice.

CURRICULUM REQUIREMENTS
The B.A. in Education requires a total of 95 credits, which include:
11. The Core Requirements: LAC courses and core education courses;
12. The Methods and Subject Matter courses, and, the Practicum ones.

Core Courses for all Education Majors (30 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EDU201</td>
<td>Fundamentals of Education</td>
<td>3</td>
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<tr>
<td>EDU203</td>
<td>Reading across the Curriculum</td>
<td>3</td>
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<tr>
<td>EDU204</td>
<td>Educational Psychology</td>
<td>3</td>
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<tr>
<td>EDU208</td>
<td>Teaching Diverse Learners</td>
<td>3</td>
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<td>EDU308</td>
<td>Multilingualism in the Classroom</td>
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<td>EDU310</td>
<td>Computers in Education</td>
<td>3</td>
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<tr>
<td>EDU330</td>
<td>Management of Learning Environments</td>
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<td>EDU332</td>
<td>Educational Assessment</td>
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<tr>
<td>STA302</td>
<td>Statistics for Social Sciences</td>
<td>3</td>
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<tr>
<td>EDU499</td>
<td>Senior Study in Education</td>
<td>3</td>
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### SUGGESTED THREE-YEAR STUDY PLAN

#### EARLY CHILDHOOD EDUCATION

**YEAR I**

<table>
<thead>
<tr>
<th>Fall Semester (16 credits)</th>
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<tbody>
<tr>
<td>ENG101</td>
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<th>Spring Semester (16 credits)</th>
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<th>Summer (6 credits)</th>
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#### Methods & Subject Matter Courses (18 credits)

**E.C.E. Emphasis**

<table>
<thead>
<tr>
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<tr>
<td>EDU209</td>
<td>English for Elementary Teachers</td>
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<tr>
<td>EDU211</td>
<td>Math for Elementary Teachers</td>
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<tr>
<td>ART 333</td>
<td>Art Education</td>
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<tr>
<td>EDU340</td>
<td>Literacy for Early Years</td>
<td>3</td>
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<tr>
<td>EDU341</td>
<td>Numeracy for Early Years</td>
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</tr>
<tr>
<td>EDU348</td>
<td>Performing Arts for Children</td>
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**Elementary Education Emphasis (Home Room Teaching)**

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<tr>
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<tbody>
<tr>
<td>EDU209</td>
<td>English for Elementary Teachers</td>
<td>3</td>
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<tr>
<td>EDU211</td>
<td>Math for Elementary Teachers</td>
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<tr>
<td>EDU342</td>
<td>Pedagogical Content Knowledge/Math</td>
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<tr>
<td>EDU343</td>
<td>Pedagogical Content Knowledge/Science</td>
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<tr>
<td>EDU344</td>
<td>Pedagogical Content Knowledge/English</td>
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<tr>
<td>EDU345</td>
<td>Pedagogical Content Knowledge/Social Studies</td>
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**Practicum (6 credits)**

**E.C.E. Emphasis**

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<tbody>
<tr>
<td>EDU300</td>
<td>Practicum 1: E.C.E.</td>
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<tr>
<td>EDU420</td>
<td>Practicum 2: E.C.E.</td>
<td>3</td>
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**Elementary Education Emphasis**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU302</td>
<td>Practicum 1: Elementary</td>
<td>3</td>
</tr>
<tr>
<td>EDU424</td>
<td>Practicum 2: Home Room Teaching</td>
<td>3</td>
</tr>
</tbody>
</table>
**YEAR II**

**Fall Semester (16 credits)**

<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>PED2—</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>EDU300</td>
<td>Practicum I</td>
<td>3</td>
</tr>
<tr>
<td>EDU308</td>
<td>Multilingualism in the Classroom</td>
<td>3</td>
</tr>
<tr>
<td>EDU330</td>
<td>Management of Learning Environments</td>
<td>3</td>
</tr>
<tr>
<td>EDU310</td>
<td>Computers in Education</td>
<td>3</td>
</tr>
</tbody>
</table>

**Spring Semester (16 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG203</td>
<td>Fundamentals of Oral Comm.</td>
<td>3</td>
</tr>
<tr>
<td>LAC Literature</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ETH201</td>
<td>Moral Reasoning</td>
<td>1</td>
</tr>
<tr>
<td>STA302</td>
<td>Intro. To Statistics in the S.S.</td>
<td>3</td>
</tr>
<tr>
<td>EDU209</td>
<td>English for Elementary Teachers</td>
<td>3</td>
</tr>
<tr>
<td>EDU211</td>
<td>Math for Elementary Teachers</td>
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</tbody>
</table>

**YEAR III**

**Fall Semester (16 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>———</td>
<td>Elective</td>
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<tr>
<td>———</td>
<td>LAC Humanities</td>
<td>3</td>
</tr>
<tr>
<td>EDU341</td>
<td>PCK Numeracy</td>
<td>3</td>
</tr>
<tr>
<td>EDU348</td>
<td>PCK Performing Arts</td>
<td>3</td>
</tr>
<tr>
<td>EDU340</td>
<td>PCK Literacy</td>
<td>3</td>
</tr>
<tr>
<td>EDUART 333</td>
<td>PCK Art Education</td>
<td>3</td>
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</table>

**Spring Semester (15 credits)**

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>———</td>
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</tr>
<tr>
<td>———</td>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>EDU420</td>
<td>Practicum II</td>
<td>3</td>
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<tr>
<td>EDU332</td>
<td>Educational Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDU499</td>
<td>Senior Study</td>
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**ELEMENTARY EDUCATION**

**YEAR I**

**Fall Semester (16 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG101</td>
<td>English I</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>LAC Social Science</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>LAC Arts</td>
<td>3</td>
</tr>
<tr>
<td>ARA—</td>
<td>Arabic</td>
<td>3</td>
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<tr>
<td>CSC201</td>
<td>Computers Applications</td>
<td>1</td>
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<tr>
<td>EDU201</td>
<td>Funds. Of Education</td>
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**Spring Semester (16 credits)**

<table>
<thead>
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<th>Title</th>
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<tbody>
<tr>
<td>ENG102</td>
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<tr>
<td>HLT 201</td>
<td>Basic Health</td>
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<tr>
<td>EDU204</td>
<td>Educational Psychology</td>
<td>3</td>
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<tr>
<td>EDU208</td>
<td>Teaching Diverse Learners</td>
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</tr>
<tr>
<td>EDU203</td>
<td>Reading Across the Curriculum</td>
<td>3</td>
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**Summer Semester (6 credits)**

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>———</td>
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<tr>
<td>———</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
</tbody>
</table>
### Year II

**Fall Semester (16 credits)**

<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>PED2--</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>EDU302</td>
<td>Practicum I</td>
<td>3</td>
</tr>
<tr>
<td>EDU308</td>
<td>Multilingualism in the Classroom</td>
<td>3</td>
</tr>
<tr>
<td>EDU330</td>
<td>Management of Learning Environments</td>
<td>3</td>
</tr>
<tr>
<td>EDU310</td>
<td>Computers in Education</td>
<td>3</td>
</tr>
</tbody>
</table>

**Spring Semester (16 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG203</td>
<td>Fundamentals of Oral Comm.</td>
<td>3</td>
</tr>
<tr>
<td>ETH201</td>
<td>Moral Reasoning</td>
<td>1</td>
</tr>
<tr>
<td>STA302</td>
<td>Intro. To Statistics in the S.S.</td>
<td>3</td>
</tr>
<tr>
<td>EDU209</td>
<td>English for Elementary Teachers</td>
<td>3</td>
</tr>
<tr>
<td>EDU211</td>
<td>Math for Elementary Teachers</td>
<td>3</td>
</tr>
</tbody>
</table>

### Year III

**Fall Semester (16 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>————</td>
<td>Elective</td>
<td>1</td>
</tr>
<tr>
<td>————</td>
<td>LAC Humanities</td>
<td>3</td>
</tr>
<tr>
<td>EDU342</td>
<td>PCK Math</td>
<td>3</td>
</tr>
<tr>
<td>EDU343</td>
<td>PCK Science</td>
<td>3</td>
</tr>
<tr>
<td>EDU344</td>
<td>PCK English</td>
<td>3</td>
</tr>
<tr>
<td>EDU345</td>
<td>PCK Social Studies</td>
<td>3</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>————</td>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>————</td>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>EDU424</td>
<td>Practicum II</td>
<td>3</td>
</tr>
<tr>
<td>EDU332</td>
<td>Educational Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDU499</td>
<td>Senior Study</td>
<td>3</td>
</tr>
</tbody>
</table>
Teaching Diploma

This program provides three options:

1. T.D. in Elementary or Early Childhood Education (ECE), for students holding, or working for, a B.A. in Education;
2. T.D. in Intermediate or Secondary Education, for students holding, or working for, a B.A./B.S. in a major other than education;
3. Professional Development T.D. (in Elementary Education/ECE), for holders of a B.A./B.S. in a major other than education.

GOALS OF CURRICULUM

Program Objectives
Graduates of the Early Childhood/Elementary Education T.D. will:

1. Extend knowledge and awareness of teaching and learning to more diverse settings (Knowledge).
2. Develop advanced knowledge in specific topics in education (Knowledge).
3. Enhance their academic research and communication skills (Skills).
4. Demonstrate commitment to continuous personal and professional development, professional ethics, and the profession as a whole (Dispositions).

Graduates of the Intermediate/Secondary T.D. and the Professional Development T.D. will:

1. Develop pedagogical content knowledge building on existing knowledge in their areas of specialization (Knowledge).
2. Communicate ideas effectively in many modalities, critically analyze information and collaborate productively in a group setting, drawing on up-to-date technologies (Skills).
3. Demonstrate professional dispositions including commitment to continuous personal and professional development, professional ethics and the profession as a whole (Dispositions).

Program Learning Outcomes
Graduates of the Early Childhood/Elementary Education T.D. will be able to:

1. Develop independence in analyzing seminal texts in education.
2. Transfer knowledge about teaching and learning to a variety of settings.
3. Analyze and synthesize information pertaining to specific topics in education.
4. Demonstrate elaborate professional communication skills.
5. Engage in professional development opportunities.

Graduates of the Intermediate/Secondary T.D. and the Professional Development T.D. will be able to:

1. Identify the key characteristics of the three main learning theories – behavioral, cognitive, and social constructivist- and their implications for pedagogy and teaching;
2. Demonstrate knowledge of general curricular objectives, scope and sequence and use this knowledge in planning;
3. Develop level specific pedagogical content knowledge building on existing knowledge in their areas of specialization;
4. Select, design and implement appropriate instruction, management, and assessment strategies for teaching in the area of emphasis;
5. Demonstrate ethical professional practice;
6. Demonstrate initiative in seeking out and participating in professional development opportunities.
T.D. CURRICULUM

The teaching diploma consists of 21 credits, to be taken in addition to the student's bachelor's degree requirements. The 21 credits may be taken in combination with the bachelor's degree courses, or in one academic year after completing them.

According to the Lebanese Government's requirements for T.D. equivalence, the diploma requires 21 credits over and above a B.A. or B.S., and T.D. requirements should be completed in no less than four years.

EARLY CHILDHOOD EDUCATION / ELEMENTARY EDUCATION
(for students holding, or working for, a B.A. in Education)

Required courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU600</td>
<td>Seminar in Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDU610</td>
<td>Advanced Topics in Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Other requirements:

Option 1: Choose three education courses and any two elective courses.

Option 2:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU450</td>
<td>Educational Development Seminar</td>
<td>3</td>
</tr>
<tr>
<td>EDU460</td>
<td>Internship 1</td>
<td>3</td>
</tr>
<tr>
<td>EDU461</td>
<td>Internship 2</td>
<td>6</td>
</tr>
</tbody>
</table>

Plus one education course.

Option 3 (only for transfer students): Up to 15 credits may be transferred from courses already taken within other majors. The rest are education electives, selected in consultation with the advisor.

INTERMEDIATE OR SECONDARY EDUCATION
(for students holding, or working for, a B.A./B.S. other than the B.A. in Education)

Core requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU204</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>EDU310</td>
<td>Computers in Education</td>
<td>3</td>
</tr>
<tr>
<td>EDU330</td>
<td>Management of Learning Environments</td>
<td>3</td>
</tr>
<tr>
<td>EDU332</td>
<td>Educational Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDU600</td>
<td>Seminar in Teaching and Learning*</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose one Methods course according to emphasis (post-B.A./B.S. courses):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU611</td>
<td>Teaching of Arabic*</td>
<td>3</td>
</tr>
<tr>
<td>EDU612</td>
<td>Teaching of English*</td>
<td>3</td>
</tr>
<tr>
<td>EDU614</td>
<td>Teaching of Social Studies*</td>
<td>3</td>
</tr>
<tr>
<td>EDU615</td>
<td>Teaching of Math*</td>
<td>3</td>
</tr>
<tr>
<td>EDU616</td>
<td>Teaching of Sciences*</td>
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</tbody>
</table>

Choose one Practicum course according to emphasis (post-B.A./B.S. courses):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU625</td>
<td>Practice Teaching Math*</td>
<td>3</td>
</tr>
<tr>
<td>EDU626</td>
<td>Practice Teaching Science*</td>
<td>3</td>
</tr>
<tr>
<td>EDU627</td>
<td>Practice Teaching English*</td>
<td>3</td>
</tr>
<tr>
<td>EDU628</td>
<td>Practice Teaching Arabic*</td>
<td>3</td>
</tr>
<tr>
<td>EDU629</td>
<td>Practice Teaching Social Studies*</td>
<td>3</td>
</tr>
</tbody>
</table>

* Each of these courses may be counted toward an M.A. in Education, provided the student gets a grade of, or greater than, B+. A maximum of six credits may be transferred to a student's M.A. record.
PROFESSIONAL DEVELOPMENT
(in Elementary Education/ECE for holders of a B.A./B.S. other than the B.A. in Education)

Core requirements:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU204</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>EDU310</td>
<td>Computers in Education</td>
<td>3</td>
</tr>
<tr>
<td>EDU330</td>
<td>Management of Learning Environments</td>
<td>3</td>
</tr>
<tr>
<td>EDU332</td>
<td>Educational Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDU600</td>
<td>Seminar in Teaching and Learning*</td>
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</table>

Choose one:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU—</td>
<td>Pedagogical Content Knowledge course, according to emphasis</td>
<td>3</td>
</tr>
<tr>
<td>EDU348</td>
<td>Performing Arts for Children</td>
<td>3</td>
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</table>

Choose one (according to emphasis):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU420</td>
<td>Practicum 2: ECE</td>
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</tr>
<tr>
<td>EDU424</td>
<td>Practicum 2: Elementary</td>
<td>3</td>
</tr>
</tbody>
</table>

TYPICAL STUDY PLAN

Most of the courses offered are common requirements with the B.A. in Education.

PLAN A

Fall

Methods courses:
- EDU450 Educational Development Seminar
- EDU460 Internship I
- EDU600 Seminar in Teaching and Learning

Spring

Practice Teaching courses:
- EDU204 Educational Psychology
- EDU451 Internship II
- EDU610 Advanced Topics in Education

PLAN B

Fall

- EDU330 Management of Learning Environments
- EDU310 Computers in Education

Methods courses:
- EDU450 Educational Development Seminar
- EDU460 Internship I
- EDU600 Seminar in Teaching and Learning

Spring
- EDU204 Educational Psychology

Practice Teaching courses:
- EDU461 Internship II
- EDU610 Advanced Topics in Education
PLAN C

Fall
- EDU310 Computers in Education
- EDU330 Management of Learning Environments

PCK courses (already offered in B.A.):
- EDU348 Performing Arts for Children

Methods courses:
- EDU450 Educational Development Seminar
- EDU460 Internship I
- EDU600 Seminar in Teaching and Learning

Spring
- EDU204 Educational Psychology
- EDU420 Practicum II: E.C.E.
- EDU424 Practicum II: Homeroom
- EDU332 Educational Assessment

Practice Teaching courses:
- EDU461 Internship II
- EDU610 Advanced Topics in Education

PLAN D

Fall
- EDU310 Computers in Education
- EDU330 Management of Learning Environments

PCK courses (already offered in B.A.):
- EDU348 Performing Arts for Children

Methods courses:
- EDU450 Educational Development Seminar
- EDU460 Internship I
- EDU600 Seminar in Teaching and Learning

Spring
- EDU204 Educational Psychology
- EDU420 Practicum II: E.C.E.
- EDU424 Practicum II: Homeroom
- EDU332 Educational Assessment

Practice Teaching courses:
- EDU461 Internship II
- EDU610 Advanced Topics in Education
MISSION
The mission of the M.A. program in Education is to respond to the educational change, and to fulfill the needs created by educational reforms. The program prepare qualified professionals in the field of Education who can assume leadership positions in schools, and educational institutions, as well as promote change and innovations, guide and mentor teachers, and develop their knowledge and skills in a life-long learning process.

GOALS OF CURRICULUM

Program 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, or school administrators.

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;
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.

1. Core Education Courses (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU802</td>
<td>Curriculum Design</td>
<td>3</td>
</tr>
<tr>
<td>EDU803</td>
<td>Methods of Educational Research</td>
<td>3</td>
</tr>
<tr>
<td>EDU806</td>
<td>Advanced Educational Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

One of the following two courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU805</td>
<td>Educational Technology</td>
<td>3</td>
</tr>
<tr>
<td>EDU872</td>
<td>Special Education*</td>
<td>3</td>
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</tbody>
</table>

*Required for Special Education emphasis.
### 2. Electives (3 credits)

One of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU812</td>
<td>Literacies across the Curriculum</td>
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</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>
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</table>

### 3. Track courses

#### General Professional Development Track (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDU8—</td>
<td>Choose any three EDU courses at the graduate level</td>
<td>9</td>
</tr>
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</table>

#### Specialist Area Track (Choose ONE of the following emphases)

##### Specialist 1: Educational Management (9 credits)

<table>
<thead>
<tr>
<th>Course</th>
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<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>
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##### Specialist 2: TESOL (9 credits)

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<tr>
<td>EDU852</td>
<td>Trends and Issues in TESOL</td>
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</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>
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##### Specialist 3: Mathematics Education (9 credits)

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<tr>
<td>EDU822</td>
<td>Trends and Issues in Mathematics Education</td>
<td>3</td>
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<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>
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##### Specialist 4: Science Education (9 credits)

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<tr>
<td>EDU862</td>
<td>Trends and Issues in Science Education</td>
<td>3</td>
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<tr>
<td>EDU863</td>
<td>Technology in Science Education</td>
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<tr>
<td>EDU8—</td>
<td>Any non-required EDU course</td>
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##### Specialist 5: Early and Middle Childhood (9 credits)

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<tr>
<td>EDU842</td>
<td>Trends and Issues in Early and Middle Childhood Education</td>
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<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>
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##### Specialist 6: Special Education (9 credits)

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<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>
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##### Specialist 7: School Counseling (9 credits)*

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<tr>
<td>EDU883</td>
<td>Counseling Theories and Techniques</td>
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</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>
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### 4. Research Work (6 credits)

Students may choose one of the following options:

#### Option 1:

EDU898 Project in Education (3 credits) + one elective course (3 credits)

#### Option 2:

EDU899 Thesis in Education (6 credits)
COURSE DESCRIPTIONS

EDU201 Fundamentals of Education [3-0, 3 cr.]
This course is an introduction to the field of education providing a comprehensive examination of the historical, philosophical, and social foundations of education. It discusses characteristics of effective educational institutions as well as trends in education and their impact on society.

EDU203 Reading across the Curriculum [3-0, 3 cr.]
This course provides prospective teachers with research-based reading comprehension strategies applicable to grades K to 6 in language and content areas. Modern trends and issues in the teaching of reading are examined with emphasis on practical work to acquaint students with the processes of reading and to improve their competency in this field.

EDU204 Educational Psychology [3-0, 3 cr.]
This course is an introduction to the field of educational psychology, addressing the psychological foundations of pedagogy. Topics include intelligence, memory, knowledge representation, cognitive and social development, learning, motivation and their educational implications.

EDU205 Safety and Health [3-0, 3 cr.]
This course covers the developmental needs of children from birth to 8 years of age. Students learn to ensure the safety and health of children in early childhood programs, and to establish developmentally appropriate learning environments for young children. Students examine opportunities of ongoing professional development for teachers and caregivers of young children. This course also discusses policy issues in safety and health and their implications on children’s well-being.

EDU208 Teaching Diverse Learners [3-0, 3 cr.]
This course is a study of diversity in learning and its implications for inclusive teaching practices. Specific emphasis will be on student learning styles and modalities; exceptionalities, such as learning disabilities, giftedness, and emotional and behavioral problems, gender equity, and the challenges of teaching non-native speakers of the language of instruction.

EDU211 Math for Elementary Teachers [3-0, 3 cr.]
This course addresses the content required to teach math in the elementary grades with focus on the first cycle. It emphasizes the development of conceptual understanding of the mathematics content present in the curriculum and on deepening the pedagogical content knowledge of future teachers. Topics include problem solving, reasoning, number, and numeration, operations, geometry and fractions and early concepts of measurement, probability and statistics.

EDU300 Practicum 1: Early Childhood
This course has two components, a seminar and a field practicum. It is designed to provide prospective teachers with opportunities to study under the auspices of experienced cooperating teachers at the early years level. This initial experience requires students to develop and demonstrate competence in focused observation, instructional planning, classroom teaching, and other collaborative and professional practices meeting the needs of a diverse student population. A minimum of 60 hours practicum is required. Note: To be placed in schools, students must have a cumulative GPA in major courses that meet graduation requirements.

EDU301 School Counseling [3-0, 3 cr.]
It is a study of the principles of the theory and practice of guidance and counseling. Emphasis is on intervention techniques that assist educators in dealing with a range of educational, personal and vocational issues and concerns at school.
Prerequisites: PSY 201 or PSY 202 or with special permission.

EDU302 Practicum 1: Elementary [3-0, 3 cr.]
This course has two components, a seminar and a field practicum. It is designed to provide prospective teachers with opportunities to study under the auspices of experienced cooperating teachers at the elementary level. This initial experience requires students to engage in focused observation of classroom practices,
EDU308 Multilingualism in the Classroom [3-o, 3 cr.]
This course is designed to provide prospective teachers with an awareness of diversity in students’ language backgrounds in particular the common phenomena of multilingualism in modern societies. Challenges of teaching students from diverse linguistic backgrounds are addressed.

EDU310 Computers in Education [3-o, 3 cr.]
This course is designed to provide prospective teachers with broad knowledge and practical skills in various instructional applications of computers and related educational theories. Topics include productivity tools for teachers as well as the evaluation, selection, and integration of educational software and Web resources in teaching and learning.

EDU330 Management of Learning Environments [3-o, 3 cr.]
This course provides prospective teachers with the current thinking on managing learning environments. Emphasis is given to grounding the management of student and group behavior in sound instructional decisions and selection of materials.

EDU332 Educational Assessment [3-o, 3 cr.]
This course is designed to develop the conceptual and technical skills required by teachers to help them identify their educational goals and implement meaningful instructional strategies for effective teaching and learning. The course will specifically outline procedures for designing, selecting, administering and interpreting, a variety of assessment measures used in the k-12 classrooms.

EDU340 Literacy for Early Years [3-o, 3 cr.]
This course provides prospective E.C.E. teachers with a foundational knowledge-base about children’s literacy development. Students learn to observe and assess children’s reading abilities and develop a repertoire of teaching strategies that reflect a balanced approach to literacy instruction. This course involves planning, implementing and evaluating experiences for children (ages 3 – 6) and assesses the role of specific content in teaching and learning in a variety of settings. A practicum component of 15 hours is required.
Prerequisites: junior standing.

EDU341 Numeracy for Early Years [3-o, 3 cr.]
This course provides prospective E.C.E. teachers with a foundational knowledge-base about children’s numeracy emergence and development. Students learn to observe and assess children’s numeracy concepts and develop a repertoire of teaching strategies that reflect a balanced approach to numeracy instruction. This course involves planning, implementing and evaluating experiences for children (ages 3 – 6) and assesses the role of specific content in teaching and learning in a variety of settings. A practicum component of 15 hours is required.
Prerequisites: junior standing.

EDU342 Pedagogical Content Knowledge/Math [3-o, 3 cr.]
This course addresses the knowledge and skills required to teach math in the upper elementary grades. It emphasizes the development of conceptual understanding of the mathematics content present in grades 1-6 curriculum and aims at deepening the pedagogical content knowledge of future teachers. A practicum component of 15 hours is required.
Prerequisites: junior standing.

EDU343 Pedagogical Content Knowledge/Science [3-o, 3 cr.]
This course aims to develop students’ understanding of key scientific concepts, the skills of scientific thinking and understanding of the nature of science required to teach science in the elementary grades (1-6). The course also introduces students to the goals of elementary science education, typical scientific misconceptions present among elementary grade students and how to approach the teaching of science as inquiry. A practicum component of 15 hours is required.
Prerequisites: junior standing.
EDU344 Pedagogical Content Knowledge/English [3-0, 3 cr.]
This course addresses the knowledge and skills required to teach English in the elementary grades (4-6). It emphasizes the development of the English content present in grades 4 to 6 curriculum and on deepening the content knowledge of future teachers. A practicum component of 15 hours is required.
Prerequisites: junior standing.

EDU345 Pedagogical Content Knowledge/Social Studies 1 [3-0, 3 cr.]
This course examines school curricula in social studies for grades 1-6. Students will explore the content of history, geography and civics and compare this to national and international standards set for the subject and specific grade levels. Special emphasis is given to values and character education. A practicum component of 15 hours is required.
Prerequisites: junior standing.

EDU348 Performing Arts for Children [3-0, 3 cr.]
This course is designed to introduce the performing arts to early childhood prospective teachers. It explores the development of creativity in young children and creative expression through art, music, dramatic play and movement. It allows prospective teachers to gain the necessary knowledge and skills to plan and implement age appropriate activities for young children. A practicum component of 15 hours is required.
Prerequisites: junior standing.

EDU420: Practicum 2 (E.C.E.) [3-0, 3 cr.]
This course provides the chance of being responsible for guiding the learning of students in the classrooms to which they have been assigned under the competent supervision of a mentor teacher at the preschool level. The student is expected to assume the responsibility and perform the duties of a classroom teacher. A seminar is held on campus weekly whereby current issues experienced by students in their practice are discussed. A practicum component of 60 hours is required.
Prerequisites: senior standing.

EDU424 Practicum 2 (Elementary Homeroom Teaching) [3-0, 3 cr.]
This course provides the chance of being responsible for guiding the learning of students in the classrooms to which they have been assigned under the competent supervision of a mentor teacher at the elementary level. The student is expected to assume the responsibility and perform the duties of a classroom teacher. A seminar is held on campus weekly whereby current issues experienced by students in their practice are discussed. A practicum component of 60 hours is required.
Prerequisites: senior standing.

EDU450 Educational Development Seminar [3-0, 3 cr.]
This course examines the field of education through exposure to the nature of education-related work in various civil society organizations, including NGOs, UN organizations and governmental initiatives. This course also considers various areas of public policy that impact the education sector at different levels. The seminar will host several guest lecturers from diverse professions in education to provide students with wider exposure and knowledge base about different topics of interest in the field.

EDU460 Internship 1 [3-0, 3 cr.]
This is the first segment of a 9-credit internship as part of the T.D.-option2 course fulfillment. This internship allows students to work in and learn more about working with infants, children and families in a diverse set of professional contexts. The internship will allow students to get hands-on and in-depth understanding of growth, change and development of children and families within a multi-contextual and family systems approach. Field internship locations are assigned by the program coordinator, in collaboration with relevant faculty, based upon the best possible match between the internship platform and students’ needs and interests.

EDU461 Internship 2 [3-0, 3 cr.]
This is a continuation of the Internship 1 course. This course gives interns an additional opportunity for learning as they work with issues involved in the field of education in a variety of contexts with direct supervision. This segment
allows interns additional time to help discover and develop critical thinking skills, and implications of the work being done in the education sector as a whole while growing confidence and gaining valuable experience. The emphasis is on gaining expertise through practical professional involvement.

**EDU499 Senior Study in Education [3-0, 3 cr.]**
This course engages prospective students with education as a field of inquiry. It encourages prospective teachers to become researcher practitioners. Students conduct a capstone project where they combine research skills with instructional practice.
*Prerequisites: senior standing.*

**EDU600 Seminar in Teaching and Learning [3-0, 3 cr.]**
This course introduces students to big ideas in teaching and learning through seminal and classic texts. Emphasis is given to various theories of teaching and learning. The course is run as a seminar where reading, discussion and written reflection on the writings of prominent theorists are the adopted modes of learning.

**EDU610 Advanced Topics in Education [3-0, 3 cr.]**
This course addresses topics of current concern in education at an advanced level. The topics can be different on different occasions when the course is taught. Regardless of topic, students will be engaged through the topic’s theoretical underpinnings and the relevant empirical research. Advanced academic literacy skills are emphasized.

**EDU611 Teaching of Arabic (Intermediate and Secondary) [3-0, 3 cr.]**
This course addresses the knowledge and skills needed to teach Arabic at the intermediate and secondary levels. Students are introduced to the teaching of Arabic, the goals of intermediate and secondary Arabic language education and the organization of curricula. In addition, students begin to develop the skills of lesson planning, appropriate methods selection, instructional strategies, application and assessment of students’ Arabic language learning. A practicum component of 15 hours is required.
*This course may be counted toward the M.A. in Education, provided that the student gets a grade of, or greater than, B+.*

**EDU612 Teaching of English (Int. and Sec.) [3-0, 3 cr.]**
This course addresses the knowledge and skills needed to teach English at the intermediate and secondary levels. Students are introduced to the teaching of English, the goals of intermediate and secondary English language education and the organization of curricula. In addition, students begin to develop the skills of lesson planning, appropriate methods selection, instructional strategies, application and assessment of the English language. A practicum component of 15 hours is required.
*This course may be counted toward the M.A. in Education, provided that the student gets a grade of, or greater than, B+.*

**EDU614 Teaching of Social Studies (Int. and Sec.) [3-0, 3 cr.]**
This course introduces students to the teaching of intermediate and secondary social studies education and the goals and organization of curricula of intermediate and secondary social studies education. In addition, students begin to develop the skills of lesson planning, teaching and assessing social studies learning. Special emphasis is given to teaching democratic values, citizenship, and character education to reflect the objectives of Lebanese and international curricula. A practicum component of 15 hours is required.
*This course may be counted toward the M.A. in Education, provided that the student gets a grade of, or greater than, B+.*

**EDU615 Teaching of Math (Int. and Sec.) [3-0, 3 cr.]**
This course addresses the knowledge and skills needed to teach mathematics at the intermediate and secondary levels. Students are introduced to the goals of intermediate and secondary math education and the organization of curricula. In addition, students begin to develop the skills of lesson planning, teaching to develop conceptual understanding, inquiry skills and mathematical reasoning;
and assessing math learning. A practicum component of 15 hours is required. This course may be counted toward the M.A. in Education, provided that the student gets a grade of, or greater than, B+.

**EDU616 Teaching of Sciences (Int. and Sec.) [3-0, 3 cr.]**
This course addresses the knowledge and skills needed to teach science at the intermediate and secondary levels. Students are introduced to the nature of science, the goals of intermediate and secondary science education and the organization of curricula. In addition, students begin to develop the skills of lesson planning; teaching to develop conceptual understanding, inquiry skills and scientific attitudes; and assessing of science learning. A practicum component of 15 hours is required. This course may be counted toward the M.A. in Education, provided that the student gets a grade of, or greater than, B+.

**EDU625 Practice Teaching Math (Int. and Sec.) [3-0, 3 cr.]**
This course addresses the knowledge and skills needed to teach mathematics at the intermediate and secondary levels and provides extended practice applying them in the classroom. The course includes one seminar per week, 60 hours of student teaching experience and conference periods with university supervisors. This course may be counted toward the M.A. in Education, provided that the student gets a grade of, or greater than, B+.

**EDU626 Practice Teaching Science (Int. and Sec.) [3-0, 3 cr.]**
This course addresses the knowledge and skills needed to teach science at the intermediate and secondary levels and provides extended practice applying them in the classroom. The course includes one seminar per week, 60 hours of student teaching experience and conference periods with university supervisors. This course may be counted toward the M.A. in Education, provided that the student gets a grade of, or greater than, B+.

**EDU627 Practice Teaching English (Int. and Sec.) [3-0, 3 cr.]**
This course addresses the knowledge and skills needed to teach English at the intermediate and secondary levels and provides extended practice applying them in the classroom. The course includes one seminar per week, 60 hours of student teaching experience and conference periods with university supervisors. Prerequisites: EDU312. This course may be counted toward the M.A. in Education, provided that the student gets a grade of, or greater than, B+.

**EDU628 Practice Teaching Arabic (Int. and Sec.) [3-0, 3 cr.]**
This course addresses the knowledge and skills needed to teach Arabic at the intermediate and secondary levels and provides extended practice applying them in the classroom. The course includes one seminar per week, 60 hours of student teaching experience and conference periods with university supervisors. Prerequisites: EDU311. This course may be counted toward the M.A. in Education, provided that the student gets a grade of, or greater than, B+.

**EDU629 Practice Teaching Social Studies (Int. and Sec.) [3-0, 3 cr.]**
This course addresses the knowledge and skills needed to teach social studies at the intermediate and secondary levels and provides extended practice applying them in the classroom. The course includes one seminar per week, 60 hours of student teaching experience and conference periods with university supervisors. Prerequisites: EDU314. This course may be counted toward the M.A. in Education, provided that the student gets a grade of, or greater than, B+.

**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 ele-
EDU803 Methods of Educational Research [3-o, 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-o, 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-o, 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-o, 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.

EDU814 Comparative Education [3-o, 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-o, 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-o, 3 cr.]
This course investigates the effects of new technologies on school mathematics, and on teaching/learning. It has theoretical and practical components, aiming at reviewing research and major theories about technology mediation in math teaching/learning, as well as laboratory sessions for training students in using software for teaching math, designing relevant class situations, and developing appropriate math curriculum materials integrating suitable technology. Technologies considered include the different types of calculators (simple, scientific and graphic), and computer software (e.g. dynamic geometry, spreadsheets as math learning tools, computer algebra systems, and math education websites).

EDU825 Mathematical Language, Representations, and Modeling [3-o, 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, representa-
tions, proof, logic, and mathematical reasoning.

**EDU832 Leading & Managing Schools/Education Institutions [3-o, 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-o, 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-o, 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-o, 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-o, 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-o, 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-o, 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-o, 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.

**EDU857 Discourse and Materials Development [3-o, 3 cr.]**
This course discusses how language teachers may incorporate pragmatic and discourse awareness in their teaching, to implement a communicative approach in their respective classrooms, and thus enhance the teaching of traditional areas of linguistic knowledge, as well as the teaching of language processing skills. This should eventually lead to materials’ development for the language classroom.
EDU862 Trends & Issues in Science Education [3-0, 3 cr.]
This course emphasizes the importance of science education, and its contribution to the needs of students in a modern society. The course provides an overview, and analysis, of the recent issues and trends in science education reform. Topics include the elements of the history of science education, the minimum requirements for a science literate citizen, the theories of science education, and how to evaluate methods, materials, curriculum, or reform projects, in science education.

EDU863 Technology in Science Education [3-0, 3 cr.]
This course provides students with an introduction to technology concepts, as applied in science education. They are shown how to find technology appropriate to solving educational problems in science education, and how to evaluate such technology. Among the technologies that may be examined are Computer Assisted Instruction (CAI), scientific and graphic calculators, CD-ROM, multimedia, laboratory probe-ware, simulations, and the Internet.

EDU872 Special Education [3-0, 3 cr.]
This course takes an in-depth look at the learning, social, and behavior characteristics of students with learning 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 behavior theory, as they apply to the classroom setting. The main objective of this course is to equip students with tools that will allow them to design and execute educational plans tailored specifically to fulfill the needs of each individual student in the classroom.

The course is geared toward the managing of day-to-day problems as they arise in the school setting. Limitations of the behavioral model are also addressed.

EDU875 Dyslexia and Reading Difficulties [3-0, 3 cr.]
This umbrella course focuses on reading difficulties, the main challenge that students with 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.
EDU885 Counseling Children and Adolescents in School Setting
[3-0, 3 cr.] *
This course covers the examination of models of therapeutic interventions from infancy to adolescence. Students become familiar with the ways of adapting appropriate interventions within the local culture e.g., play therapy and token economy with children, and the use of cognitive and emotional therapies with adolescents. In addition, this course will examine the basic developmental issues from infancy to adolescence that under-gird counseling practice. Typical psychosocial tasks are explored, with special consideration for counseling in a school context.

EDU887 Counseling Practicum [3-0, 3 cr.] *
This course is a semester of supervised counseling practice in a school setting, consistent with the student’s professional goals. This pre-professional experience allows students to implement counseling strategies while receiving structured and intensive feedback about their strengths, and weaknesses. Students will meet with LAU faculty for weekly seminar classes throughout the practicum.

EDU888 Topics in Education [3-0, 3 cr.]
This course deals with the current issues, and concerns, in education. It is alternatively taught by various faculty to cover a wide range of specialty areas.

EDU898 Project in Education [3 cr.]
This course 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.

*Currently frozen
MISSION
The mission of the Department of English Language Instruction is to promote students’ English language proficiency and communication skills, for academic as well as professional and specific purposes. In line with the mission of the university and that of the School of Arts and Sciences, teaching and learning are conducted in a student-centered, intellectually challenging, and diverse learning environment that promotes student integrity, critical thinking, research skills, and civic engagement.

GOALS OF CURRICULUM

Educational Objectives
The objectives of the Department of English Language Instruction include:

1. Fostering an “English across the Curriculum” approach in the teaching of reading and writing;
2. Offering a student-centered learning environment with support services;
3. Promoting students’ critical thinking, argumentative, and ethical research skills;
4. Encouraging civic engagement.

Learning Outcomes
Students completing courses offered in the Department of English Language Instruction will be able to:

1. Read and write in a variety of approaches and modes;
2. Demonstrate effective use of argumentative skills;
3. Use a process approach to writing;
4. Demonstrate skills of critical and independent thinking;
5. Demonstrate effective use of oral-aural skills and of syntax and mechanics;
6. Use sources effectively and ethically in research

CHAIR
Rula Diab, Ph.D.

PROGRAMS COORDINATOR
Therese Nasrallah, M.S.

SENIOR INSTRUCTOR
Paula Habre, M.A.

INSTRUCTORS
Samir Abu-Teen, M.A.
Usama Acra, M.A.
Reine Azzi, M.A.
Evelyn Chatila, M.A.
Deema Dakakni, M.A.
Orpha Darwish, M.S.
Suhail Dasouki, M.B.A.
Nermine Hage, M.A.
Dana Hodeib-Eido, M.A.
Raghida Ibrahim, M.A.
Wassila Makarem, M.A.
Giselle Pempedjian, M.S.
Brian Prescott-Decie, M.A.
Suraya Rahme, M.A.
Mona Shahine, M.A.
Samira Shami, M.A.
Zein Shweiry, M.A.
Amy Yusuf Karameh, M.A.

ASSISTANT INSTRUCTOR
Nabil Salman, B.A.
COURSE DESCRIPTIONS

ENG002 Intensive English II [12-2, 0 cr.]
This is a non-credit, low intermediate level English course aimed at consolidating learned language 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.
Prerequisites: English Entrance Exam (EEE) 400–449 or its equivalent.

ENG003 Intensive English III [12-2, 0 cr.]
This is a non-credit, high intermediate level English course, further expanding English proficiency in listening, speaking, reading and writing, according to an integrated content-based approach with laboratory support, in preparation for academic English courses.
Prerequisites: EEE 450–499 or 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 format of the paragraph and the essay. Basic grammar and mechanical skills are revisited. The course emphasizes academic style and task-based work. A laboratory component reinforces listening, speaking and study skills.
Prerequisites: EEE score 500 - 549 or its equivalent.

ENG101 English I [3-0, 3 cr.]
This course is designed to reinforce critical reading and writing skills, with emphasis on summarizing, paraphrasing, and citing sources to develop documented essays in various modes. The course focuses on academic style and task-based work.
Prerequisites: ENG009, or EEE score 500–549, or its equivalent.

ENG102 English II [3-0, 3 cr.]
This course is designed to develop advanced reading and writing skills associated with academic work. Focus is on the analytical and critical reading of texts as well as on writing in a variety of argumentative modes. Emphasis is also on developing a research paper by learning how to formulate researchable questions, and how to locate, integrate and cite appropriate academic resources from the library, the electronic media, and the community.
Prerequisites: ENG101 English I, or EEE score between 600–649, or its equivalent.

Notes:
- To pass from ENG002 to ENG003: A minimum grade of D is required, or a score between 450–499 or its equivalent, on the EEE.
- To pass from ENG002 to ENG009: A minimum grade of C+ is required or a minimum score of 500, or its equivalent, on the EEE.
- To pass from ENG003 to ENG009: A minimum grade of C is required, or a minimum score of 500, or its equivalent, on the EEE.
- However, a student must get a minimum grade of D in the Intensive English course to be eligible to sit for the Intensive English Comprehensive Exam.
- Students registered in Intensive English II and III may also register for one or two university courses (a maximum of 3–4 credits) that require minimal English, as specified by the Intensive English program, and upon the consent of the Intensive English advisor, and the student's advisor in the major.
- Students who pass from Intensive English into university English are placed in the university English courses according to their EEE scores, or equivalent. Intensive English students who have passed the LAU Intensive English and do not have an EEE, or an equivalent score, before entering the university, will be placed into ENG009.
Department of Humanities

DEGREES OFFERED
• Bachelor of Arts (B.A.) in Arabic Language and Literature
• Bachelor of Arts (B.A.) in English
• Bachelor of Arts (B.A.) in History
• Bachelor of Arts (B.A.) in Philosophy
• Bachelor of Arts (B.A.) in Translation
• Master of Arts (M.A.) in Comparative Literature

Minors in: Arabic Language and Literature, English

INTERIM CHAIR
Nahla Bacha, Ph.D.

ASSOCIATE CHAIR
Nada Saab, Ph.D.

PROFESSORS
Samira Aghacy, Ph.D.
Selim Deringil, Ph.D.
Latif Zeitouni, Ph.D.

ASSOCIATE PROFESSORS
Antoine Abdo, Ph.D.
Kristiaan Aercke, Ph.D.
Vahid Behmardi, Ph.D.
Rula Diab, Ph.D.
Irma-Karina Ghosn, Ph.D.
Victor Khachan, Ph.D.
Richard Khuri, Ph.D.
Habib Malik, Ph.D.

ASSISTANT PROFESSORS
Jenine Abboushi, Ph.D.
Dany Badran, Ph.D.
Luma Balaa, Ph.D.
Nidale Daccache El-Amyouni, Ph.D.
Nuwar Diab, Ph.D.
Lydia Langerwerf, Ph.D.
Marianne Marroum, Ph.D.
Ray Mouawad, Ph.D.

LECTURERS
Nadra Assaf, Ed.D
Tarif Bazzi, Ph.D.
Ibrahim El Hussari, Ph.D.
Nableh Haraty, Ed.D
Samar Moujaes, Ph.D.
George Sadaka, Ph.D.
Larissa Vassilenko, Ph.D.

INSTRUCTOR
Nadim Mohsen, M.A., D.E.A.
The B.A. in Arabic Language and Literature prepares students for careers in fields that demand clear writing and expression in fluent Arabic, the presentation of logical arguments, and the critical evaluation of the opinions of others. These fields include education, journalism, translation, and/or editing.

MISSION
The mission of the Arabic Language and Literature program is to offer a quality Arabic program that will appeal to a range of student interests and offers the widest range of career opportunities after graduation and will attract graduate students with a strong liberal arts background who hope to enhance their role as well-rounded individuals.

GOALS OF CURRICULUM

Educational Objectives
The purpose of the Bachelor of Arts in Arabic Language and Literature program is to:

1. Give students the interdisciplinary background and expertise in analytical and writing skills that will qualify them for jobs in a variety of fields such as education, journalism, publishing, translation and creative arts;
2. Prepare students for today’s interdisciplinary graduate studies programs in Arabic literature and language, comparative literature, Middle Eastern studies, religious studies, etc.;
3. Give students wishing to pursue a career in high school education a level of literary and cultural proficiency that will qualify them for the best jobs in Lebanon, in the region and in Western countries (assuming they also acquire the Teaching Diploma).

Learning Outcomes
Graduates in the Bachelor of Arts in Arabic Language and Literature will:

1. Acquire a high level of mastery of the Arabic grammar and other branches of Arabic linguistics such as philology and lexicology;
2. Become fully acquainted with major trends of literary production in both medieval and modern times, as well as theories of Arabic rhetoric, prosody and literary criticism from classical, modern and post-modern perspectives;
3. Be able to pursue a career in teaching Arabic a level of proficiency that will qualify them for the best jobs in Lebanon, the region and Western countries (assuming they also acquire the Teaching Diploma);
4. Develop proficiency in surveying primary and secondary sources of Arabic language and literature;
5. Demonstrate ability to write and express the outcome of their learning in a scholarly manner;
6. Acquire an in-depth knowledge of the sequential literary epochs over the past 15 centuries;
7. Receive intensive training in the analysis of literary texts that include poetry and prose;
8. Relate Arabic literature to non-literature cognates such as mysticism, theology, politics and philosophy;
9. Establish a solid ground for graduate studies in disciples related to the culture and civilization of the Middle East.
CURRICULUM REQUIREMENTS

Liberal Arts Curriculum Requirements (34 credits)

Major Core Requirements (39 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ARA303</td>
<td>Arabic Grammar and Syntax</td>
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<tr>
<td>ARA304</td>
<td>Arabic Linguistics</td>
<td>3</td>
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<tr>
<td>ARA305</td>
<td>Arabic Philology and Lexicography</td>
<td>3</td>
</tr>
<tr>
<td>ARA310</td>
<td>Classical Arabic Rhetoric and Literary Criticism</td>
<td>3</td>
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<tr>
<td>ARA312</td>
<td>Contemporary Literary Theory and Criticism</td>
<td>3</td>
</tr>
<tr>
<td>ARA320</td>
<td>Pre-Islamic and Umayyad Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ARA323</td>
<td>Abbasid Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ARA324</td>
<td>Andalusian Literature</td>
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<td>ARA325</td>
<td>Classical Prose</td>
<td>3</td>
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<tr>
<td>ARA341</td>
<td>Modern Arabic Novel and Short Story</td>
<td>3</td>
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<tr>
<td>ARA342</td>
<td>Arabic Drama</td>
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<tr>
<td>ARA343</td>
<td>Modern Arabic Poetry</td>
<td>3</td>
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<tr>
<td>ARA499</td>
<td>Senior Study</td>
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Arabic Electives (12 credits)

Choose 12 credits from:

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<tbody>
<tr>
<td>ARA311</td>
<td>Arabic Prosody</td>
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<td>ARA313</td>
<td>Creative Writing</td>
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<tr>
<td>ARA314</td>
<td>Technical Arabic</td>
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<td>ARA326</td>
<td>Arab Civilization and Culture</td>
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<tr>
<td>ARA327</td>
<td>Sufi Literature</td>
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<td>ARA328</td>
<td>Arabic Folk Literature</td>
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<td>ARA329</td>
<td>Travel Literature</td>
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<td>ARA344</td>
<td>Trends in Modern Literature</td>
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<tr>
<td>ARA488</td>
<td>Topics in Arabic Language and Literature</td>
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SUGGESTED THREE-YEAR STUDY PLAN

YEAR I (32 CREDITS)

Fall Semester (16 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>ENG202</td>
<td>Sophomore Rhetoric (LAC course)</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>Arabic requirement (LAC course)</td>
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<tr>
<td>ARA325</td>
<td>Classical Prose</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>LAC elective</td>
<td>3</td>
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<tr>
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<td>LAC elective</td>
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</tr>
<tr>
<td>ETH201</td>
<td>Ethics (LAC course)</td>
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Spring Semester (16 credits)

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ENG203</td>
<td>Oral Communication (LAC course)</td>
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<tr>
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</tr>
<tr>
<td>ARA303</td>
<td>Arabic Grammar and Syntax</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
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<td>3</td>
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<tr>
<td>CSC201</td>
<td>Computer Application</td>
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YEAR II (31 CREDITS)

Fall Semester (15 credits)

<table>
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<th>Course</th>
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<tbody>
<tr>
<td>ARA304</td>
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<tr>
<td>ARA341</td>
<td>Modern Arabic Novel &amp; Short Story</td>
<td>3</td>
</tr>
<tr>
<td>ARA320</td>
<td>Pre-Islamic &amp; Umayyad Poetry</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>Free Elective</td>
<td>3</td>
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<tr>
<td>———</td>
<td>LAC Elective</td>
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<tr>
<td>PED201</td>
<td>Basic Health (LAC course)</td>
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</table>
### Spring Semester (16 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ARA310</td>
<td>Classical Arabic Rhetoric &amp; Literary Criticism</td>
<td>3</td>
</tr>
<tr>
<td>ARA342</td>
<td>Arabic Drama</td>
<td>3</td>
</tr>
<tr>
<td>ARA323</td>
<td>Abbasid Poetry</td>
<td>4</td>
</tr>
<tr>
<td>ARA324</td>
<td>Andalusian Literature</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Elective</td>
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</tr>
<tr>
<td>PED—</td>
<td>Physical Education (LAC)</td>
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### YEAR III (29 CREDITS)

### Fall Semester (15 credits)

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<td>ARA305</td>
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<tr>
<td>ARA343</td>
<td>Modern Arabic Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ARA312</td>
<td>Contemporary Literary Theory and Criticism</td>
<td>3</td>
</tr>
<tr>
<td>ARA305</td>
<td>Arabic Philology &amp; Lexicography</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Arabic Elective</td>
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<tr>
<td>——</td>
<td>Free Elective</td>
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### Spring Semester (15 credits)

<table>
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<th>Course</th>
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<tbody>
<tr>
<td>ARA499</td>
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<td>Arabic Elective</td>
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<tr>
<td>——</td>
<td>Arabic Elective</td>
<td>3</td>
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<tr>
<td>——</td>
<td>Free Elective</td>
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<tr>
<td>——</td>
<td>Free Elective</td>
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</tbody>
</table>
Bachelor of Arts (B.A.) in English

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 English program at the Lebanese American University aims at providing students with communicative competence in English and at enhancing their qualification potential for a wide range of career opportunities.

Educational Objectives
Graduates from the B.A. program in English will:
1. be prepared for field-related careers in Lebanon and abroad;
2. be prepared for follow up graduate programs in English Studies, Comparative Literature and other interdisciplinary fields.

Learning Outcomes
Graduates in the B.A. in English program will be able to:
1. Analyze texts from multiple points of view in the context of history, society, culture and politics:
   1. Explain the differences between the major genres, forms and modes of literature;
   2. Analyze texts in their cultural and historical contexts;
   3. Evaluate the significance of co-text and context to the interpretative process.
2. Demonstrate the ability to interpret, explain, and appraise the allusive qualities of texts:
   1. Recognize the various levels of meaning in text;
   2. Examine the aesthetic features of text;
   3. Compare objective, inter-subjective and subjective levels of meaning.
3. Evaluate the principal theoretical assumptions in literature and culture:
   1. Identify theoretical concepts underlying literary and cultural production;
   2. Apply a range of theoretical approaches in text analysis;
   3. Examine the role of ideology in literary and cultural texts.
4. Demonstrate knowledge of thematic content and the formal features of discourse:
   1. Analyze texts with reference to their content and formal schemata;
   2. Compare and contrast rhetorical strategies employed in various thematic readings;
   3. Evaluate the significance of contextual, social and cultural features.
5. Interpret literary texts from a systematic linguistic perspective:
   1. Identify relationships between the different levels of linguistic form and meaning;
   2. Apply the principles of a systematic structural analysis to the interpretation of text;
   3. Examine the contribution of the field of linguistics both to the process of textual interpretation and to the field of teaching English.
6. Produce individual scholarly research projects of significant length:
   1. Identify a relevant topic related to the course material for the research project;
   2. Conduct research on the topic using academic databases and the scholarly literature;
   3. Interpret the research findings in a well-argued paper written using the appropriate terminology in literature or linguistics.

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 English program at the Lebanese American University aims at providing students with communicative competence in English and at enhancing their qualification potential for a wide range of career opportunities.

Educational Objectives
Graduates from the B.A. program in English will:
1. be prepared for field-related careers in Lebanon and abroad;
2. be prepared for follow up graduate programs in English Studies, Comparative Literature and other interdisciplinary fields.

Learning Outcomes
Graduates in the B.A. in English program will be able to:
1. Analyze texts from multiple points of view in the context of history, society, culture and politics:
   1. Explain the differences between the major genres, forms and modes of literature;
   2. Analyze texts in their cultural and historical contexts;
   3. Evaluate the significance of co-text and context to the interpretative process.
2. Demonstrate the ability to interpret, explain, and appraise the allusive qualities of texts:
   1. Recognize the various levels of meaning in text;
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6. Produce individual scholarly research projects of significant length:
   1. Identify a relevant topic related to the course material for the research project;
   2. Conduct research on the topic using academic databases and the scholarly literature;
   3. Interpret the research findings in a well-argued paper written using the appropriate terminology in literature or linguistics.
**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.

**Liberal Arts Curriculum Requirements (34 credits)**

**Major Core Requirements (18 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG303</td>
<td>Literary Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>ENG319</td>
<td>History of the English Language</td>
<td>3</td>
</tr>
<tr>
<td>ENG354</td>
<td>Theories of Literature and Culture</td>
<td>3</td>
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<td>ENG366</td>
<td>Creative Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENG372</td>
<td>Comparative and World Literatures</td>
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<tr>
<td>ENG499</td>
<td>Senior Study</td>
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**Literature Emphasis Requirements (24 credits)**

Choose 6 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ENG323</td>
<td>Renaissance Drama</td>
<td>3</td>
</tr>
<tr>
<td>ENG324</td>
<td>Medieval Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENG325</td>
<td>Renaissance Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ENG326</td>
<td>Restoration and Neoclassical Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENG328</td>
<td>Early Novel</td>
<td>3</td>
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</tbody>
</table>

Choose 3 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG336</td>
<td>Romantic and Victorian Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ENG339</td>
<td>Nineteenth-Century British Novel</td>
<td>3</td>
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Choose 6–9 credits from:

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<tbody>
<tr>
<td>ENG342</td>
<td>Modernism and Beyond</td>
<td>3</td>
</tr>
<tr>
<td>ENG345</td>
<td>Twentieth-Century British Novel</td>
<td>3</td>
</tr>
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</table>
### SUGGESTED THREE-YEAR STUDY PLAN

#### B.A. in ENGLISH LITERATURE

**Year I (32 credits)**

**Fall Semester (16 credits)**

<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>ENG319</td>
<td>History of the English Language</td>
<td>3</td>
</tr>
<tr>
<td>ENG323</td>
<td>Renaissance Drama</td>
<td>3</td>
</tr>
<tr>
<td>ENG366</td>
<td>Creative Writing</td>
<td>3</td>
</tr>
<tr>
<td>HLT 201</td>
<td>Basic Health</td>
<td>1</td>
</tr>
<tr>
<td>COM229</td>
<td>History and Theory of Film</td>
<td>3</td>
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**Spring Semester (16 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENG203</td>
<td>Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENG303</td>
<td>Literary Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>ENG342</td>
<td>Modernism and Beyond</td>
<td>3</td>
</tr>
<tr>
<td>ETH201</td>
<td>Moral Reasoning</td>
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<tr>
<td>COM325</td>
<td>Feature &amp; Magazine Writing</td>
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**Year II (31 credits)**

**Fall Semester (15 credits)**

<table>
<thead>
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<tr>
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<td>Renaissance Poetry</td>
<td>3</td>
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<tr>
<td>ENG351</td>
<td>Early American Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENG352</td>
<td>Twentieth-Century American Novel</td>
<td>3</td>
</tr>
<tr>
<td>ARA201</td>
<td>Appreciation of Arabic Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENG328</td>
<td>The Early Novel</td>
<td>3</td>
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**Spring Semester (16 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG346</td>
<td>Contemporary Culture</td>
<td>3</td>
</tr>
<tr>
<td>PHL210</td>
<td>Critical and Creative Thinking</td>
<td>3</td>
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<tr>
<td>BIO201</td>
<td>General Biology I</td>
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<tr>
<td>ART431</td>
<td>Modern Art</td>
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**Choose 3 credits from:**

- ENG351: Early American Literature
- ENG352: Twentieth-Century American Novel
- ENG325: Renaissance Poetry
- ENG336: Romantic and Victorian Poetry
- ENG342: Modernism and Beyond

**Choose 3 credits from:**

- ENG325: Renaissance Poetry
- ENG336: Romantic and Victorian Poetry
- ENG342: Modernism and Beyond

**Suggested Electives (6 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENG346</td>
<td>Contemporary Culture</td>
<td>3</td>
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<tr>
<td>ENG348</td>
<td>Postcolonial Anglophone Literatures</td>
<td>3</td>
</tr>
<tr>
<td>ENG487</td>
<td>Topics in Drama and Theater</td>
<td>3</td>
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<tr>
<td>ENG479</td>
<td>Topics in Literature and Culture</td>
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**Language Emphasis Requirements (24 credits)**

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ENG213</td>
<td>Introduction to Language</td>
<td>3</td>
</tr>
<tr>
<td>ENG214</td>
<td>English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>ENG306</td>
<td>Introduction to Phonetics &amp; Phonology</td>
<td>3</td>
</tr>
<tr>
<td>ENG307</td>
<td>Introduction to Psycholinguistics or</td>
<td>3</td>
</tr>
<tr>
<td>ENG310</td>
<td>Sociolinguistics</td>
<td>3</td>
</tr>
<tr>
<td>ENG308</td>
<td>Semantics and Pragmatics</td>
<td>3</td>
</tr>
<tr>
<td>ENG473</td>
<td>Topics in English Language</td>
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**Literature courses electives other than ENG211/212 (6 credits)**

**Suggested Electives (16 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG213</td>
<td>Introduction to Language</td>
<td>3</td>
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<tr>
<td>ENG214</td>
<td>English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>ENG306</td>
<td>Introduction to Phonetics &amp; Phonology</td>
<td>3</td>
</tr>
<tr>
<td>ENG307</td>
<td>Introduction to Psycholinguistics or</td>
<td>3</td>
</tr>
<tr>
<td>ENG310</td>
<td>Sociolinguistics</td>
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<tr>
<td>ENG308</td>
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<td>3</td>
</tr>
<tr>
<td>ENG473</td>
<td>Topics in English Language</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Literature courses electives other than ENG211/212</td>
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## Year III (29 credits)
### Fall Semester (16 credits)

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>REL412</td>
<td>History of Religious Thought in the M.E.</td>
<td>3</td>
</tr>
<tr>
<td>ENG372</td>
<td>Comparative &amp; World Literatures</td>
<td>3</td>
</tr>
<tr>
<td>COM210</td>
<td>Communication Media &amp; Society</td>
<td>3</td>
</tr>
<tr>
<td>ETH201</td>
<td>Moral Reasoning</td>
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## Spring Semester (13 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG348</td>
<td>Postcolonial Anglophone Literatures</td>
<td>3</td>
</tr>
<tr>
<td>CSC201</td>
<td>Computer Applications</td>
<td>1</td>
</tr>
<tr>
<td>PHL322</td>
<td>Philosophy in Literature &amp; Film</td>
<td>3</td>
</tr>
<tr>
<td>COM326</td>
<td>Script Writing</td>
<td>3</td>
</tr>
<tr>
<td>WOS 412</td>
<td>Representations of Women in Arts and Media</td>
<td>3</td>
</tr>
<tr>
<td>SOC 488</td>
<td>Topics in Sociology</td>
<td>3</td>
</tr>
<tr>
<td>ENG328</td>
<td>Early Novel</td>
<td>3</td>
</tr>
<tr>
<td>ENG307</td>
<td>Intro to Psycholinguistics</td>
<td>3</td>
</tr>
<tr>
<td>ENG354</td>
<td>Theories of Literature &amp; Culture</td>
<td>3</td>
</tr>
<tr>
<td>ARA201</td>
<td>Appreciation of Arabic Literature</td>
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<tr>
<td>HST201</td>
<td>Historical Tools</td>
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## B.A. in ENGLISH LANGUAGE

### Year I (32 credits)

#### Fall Semester (16 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG202</td>
<td>Sophomore Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>ENG213</td>
<td>Intro to Language</td>
<td>3</td>
</tr>
<tr>
<td>ENG214</td>
<td>English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>ENG319</td>
<td>History of the English Language</td>
<td>3</td>
</tr>
<tr>
<td>ENG366</td>
<td>Creative Writing</td>
<td>3</td>
</tr>
<tr>
<td>HLT 201</td>
<td>Basic Health</td>
<td>1</td>
</tr>
<tr>
<td>ENG342</td>
<td>Modernism &amp; Beyond</td>
<td>3</td>
</tr>
<tr>
<td>ENG345</td>
<td>The 20th-century British Novel</td>
<td>3</td>
</tr>
<tr>
<td>ENG473</td>
<td>Topics in English Language</td>
<td>3</td>
</tr>
<tr>
<td>COM326</td>
<td>Script Writing</td>
<td>3</td>
</tr>
<tr>
<td>HST221</td>
<td>History of Lebanon</td>
<td>3</td>
</tr>
<tr>
<td>CSC201</td>
<td>Computer Applications</td>
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</table>

#### Spring Semester (16 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG203</td>
<td>Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENG303</td>
<td>Literary Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>ENG306</td>
<td>Intro to Phonetics &amp; Phonology</td>
<td>3</td>
</tr>
<tr>
<td>ENG308</td>
<td>Semantics &amp; Pragmatics</td>
<td>3</td>
</tr>
<tr>
<td>BIO 201</td>
<td>General Biology I</td>
<td>4</td>
</tr>
<tr>
<td>COM325</td>
<td>Feature &amp; Magazine Writing</td>
<td>3</td>
</tr>
<tr>
<td>PHL 210</td>
<td>Critical &amp; Creative Thinking</td>
<td>3</td>
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<tr>
<td>WOS412</td>
<td>Representations of Women in Arts &amp; Media</td>
<td>3</td>
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<tr>
<td>ENG346</td>
<td>Contemporary Culture</td>
<td>3</td>
</tr>
<tr>
<td>ENG348</td>
<td>Postcolonial Anglophone Literatures</td>
<td>3</td>
</tr>
<tr>
<td>ENG336</td>
<td>Romantic and Victorian Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ENG499</td>
<td>Senior Study</td>
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</tr>
<tr>
<td>PED231</td>
<td>Modern Dance</td>
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</table>
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.

GOALS OF CURRICULUM

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. Getting a comparative perspective on leading historical events and personalities;
2. Developing an acquaintance with the principal themes and arguments that have informed the weighty historical disputes and conflicts;
3. Drawing 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 Liberal Arts Curriculum requirements, 42 are history courses and 16 are free electives.

The program features nine 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 nine areas are the following:

HST205 Historical Tools (required, 3 credits)

Ancient World History (3 credits)
Choose one:

<table>
<thead>
<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>HST220</td>
<td>Pre-History to Pericles</td>
<td>3</td>
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<td>HST221</td>
<td>Greece and Rome</td>
<td>3</td>
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</table>

History of Lebanon (HST231 required, 3 credits)

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HST230</td>
<td>From Antelias Man to the Ottoman Conquest of 1516</td>
<td>3</td>
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<tr>
<td>HST231</td>
<td>From the Imarah to the 1975-1990 War</td>
<td>3</td>
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Arab and Middle Eastern History (6 credits)
Two courses required including either HST240 or HST241:

<table>
<thead>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HST240</td>
<td>History of the Arab Peoples Conquest of 1516</td>
<td>3</td>
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<tr>
<td>HST241</td>
<td>History of Islam in the Middle East</td>
<td>3</td>
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<tr>
<td>HST242</td>
<td>Europe and the Middle East 1798-1956</td>
<td>3</td>
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<td>HST243</td>
<td>Economic History of the Middle East</td>
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<tr>
<td>HST244</td>
<td>History of the Arab-Israeli Conflict</td>
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European History (6 credits)
Any two courses required:

<table>
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<th>Credits</th>
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<td>Europe in Late Antiquity 410-1066;</td>
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<td>HST302</td>
<td>Medieval Europe 1066-1453;</td>
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<td>HST303</td>
<td>Early Modern Europe 1450-1750;</td>
<td>3</td>
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<td>HST304</td>
<td>Modern Europe 1750-1945;</td>
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<tr>
<td>HST305</td>
<td>Contemporary Europe 1945-1989;</td>
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World History (9 credits)
Any three courses required:

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<th>Credits</th>
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<tr>
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<td>History of Byzantium</td>
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<td>HST331</td>
<td>History of Russia</td>
<td>3</td>
</tr>
<tr>
<td>HST332</td>
<td>History of China</td>
<td>3</td>
</tr>
<tr>
<td>HST333</td>
<td>History of South Asia</td>
<td>3</td>
</tr>
<tr>
<td>HST334</td>
<td>History of North America</td>
<td>3</td>
</tr>
<tr>
<td>HST335</td>
<td>History of Central and South America</td>
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<td>HST336</td>
<td>History of Africa</td>
<td>3</td>
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Thematic History (6 credits)
Any two courses required:

<table>
<thead>
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<td>HST340</td>
<td>Topics in the History of Ideas</td>
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<tr>
<td>HST341</td>
<td>Topics in the History of Science</td>
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<tr>
<td>HST342</td>
<td>Topics in the History of Religion</td>
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<tr>
<td>HST343</td>
<td>Topics in Economic History</td>
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HST401 Special Topics in History (one topics course required, 3 credits)

HST499 Senior Study (required, 3 credits)
**SUGGESTED THREE-YEAR STUDY PLAN**

### YEAR I

**Fall Semester (16 credits)**
- **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

**Spring Semester (16 credits)**
- **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
- **——**: Social Science 3
- **CSC201**: Computer Applications 1

### YEAR II

**Fall Semester (16 credits)**
- **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

### YEAR III

**Fall Semester (15 credits)**
- **HST499**: Senior Study 3
- **HST342**: Topics in History of Religion 3
- **HST334**: History of North America 3
- **——**: Humanities 3
- **——**: Free Elective 3

**Spring Semester (13 credits)**
- **HST408**: Comparative Nationalisms 3
- **——**: Free Elective 3
- **——**: Free Elective 3
- **——**: Free Elective 3
- **——**: Free Elective 3
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.

GOALS OF CURRICULUM

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, penetratingly, 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 Liberal Arts Curriculum Requirements, 42 are philosophy courses and 16 are free electives.

The philosophy course requirements consist of 7 areas of course work, distributed as follows:

Logic Requirements (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHL 210</td>
<td>Critical and Creative Thinking;</td>
<td>3</td>
</tr>
<tr>
<td>PHL 211</td>
<td>Symbolic Logic</td>
<td>3</td>
</tr>
</tbody>
</table>

History of Philosophy Requirements (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHL 201</td>
<td>Ancient Philosophy: From the Pre-Socratics to the Epicureans and the Stoics</td>
<td>3</td>
</tr>
<tr>
<td>PHL 202</td>
<td>Medieval Philosophy: From Plotinus to Ockham</td>
<td>3</td>
</tr>
<tr>
<td>PHL 203</td>
<td>Early Modern Philosophy: From Montaigne to Kant</td>
<td>3</td>
</tr>
<tr>
<td>PHL 204</td>
<td>Modern Philosophy: From Hegel to Heidegger and/or Frege to Wittgenstein</td>
<td>3</td>
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</tbody>
</table>

Twelve core courses in philosophy (9 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHL 301</td>
<td>Ethics</td>
<td>3</td>
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<tr>
<td>PHL 302</td>
<td>Theory of Knowledge</td>
<td>3</td>
</tr>
<tr>
<td>PHL 303</td>
<td>Metaphysics</td>
<td>3</td>
</tr>
<tr>
<td>PHL 311</td>
<td>Philosophy of Religion</td>
<td>3</td>
</tr>
<tr>
<td>PHL 321</td>
<td>Philosophy of Art</td>
<td>3</td>
</tr>
<tr>
<td>PHL 322</td>
<td>Philosophy in Literature and Film</td>
<td>3</td>
</tr>
<tr>
<td>PHL 323</td>
<td>Philosophy of History</td>
<td>3</td>
</tr>
<tr>
<td>PHL 324</td>
<td>Philosophy of Science</td>
<td>3</td>
</tr>
<tr>
<td>PHL 325</td>
<td>Philosophy of Mind</td>
<td>3</td>
</tr>
<tr>
<td>PHL 326</td>
<td>Social and Political Philosophy</td>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>PHL 327</td>
<td>Philosophy and Mythology</td>
<td>3</td>
</tr>
<tr>
<td>PHL 328</td>
<td>Arab and Islamic Philosophy</td>
<td>3</td>
</tr>
</tbody>
</table>

PHL 350 courses on the individual philosophers (any two required, 6 credits)

Special Topics (any two courses required, 6 credits)

PHL 499 Senior Study (required, 3 credits)

SUGGESTED THREE-YEAR STUDY PLAN

YEAR I

Fall Semester (16 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHL 210</td>
<td>Critical Thinking</td>
<td>3</td>
</tr>
<tr>
<td>PHL 201</td>
<td>Ancient Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>ENG 202</td>
<td>Sophomore Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>LAC Elective</td>
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</tr>
<tr>
<td>ETH 201</td>
<td>Moral Reasoning</td>
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Spring Semester (16 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHL 202</td>
<td>Medieval Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHL 211</td>
<td>Symbolic Logic</td>
<td>3</td>
</tr>
<tr>
<td>ENG 203</td>
<td>Fundamentals of Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>ARA 201</td>
<td>Appreciation of Arabic Literature</td>
<td>3</td>
</tr>
<tr>
<td>CSC 201</td>
<td>Computer Applications</td>
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</table>
### YEAR II

#### Fall Semester (16 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHL203</td>
<td>Early Modern Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHL351</td>
<td>Aristotle</td>
<td>3</td>
</tr>
<tr>
<td>PHL302</td>
<td>Theory of Knowledge</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>HLT201</td>
<td>Basic Health</td>
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</table>

#### Spring Semester (16 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHL204</td>
<td>Modern Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHL35</td>
<td>Hegel</td>
<td>3</td>
</tr>
<tr>
<td>PHL301</td>
<td>Ethics</td>
<td>3</td>
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<tr>
<td>——</td>
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</tr>
<tr>
<td>PED101</td>
<td>Physical Education</td>
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<tr>
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### YEAR III

#### Fall Semester (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>PHL324</td>
<td>Philosophy of Science</td>
<td>3</td>
</tr>
<tr>
<td>PHL391</td>
<td>Heidegger and the Pre-Socratics</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Free Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Free Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Spring Semester (12 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHL390</td>
<td>Philosophy of the Environment</td>
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<tr>
<td>PHL499</td>
<td>Senior Study</td>
<td>3</td>
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<tr>
<td>——</td>
<td>Free Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Free Elective</td>
<td>3</td>
</tr>
</tbody>
</table>
Bachelor of Arts (B.A.) in Translation

MISSION
The mission of the B.A. in Translation program is to prepare ethical and professional translators capable of accurately translating cultural, economic, legal, and technical texts, thus meeting the job market demands.

GOALS OF CURRICULUM

Educational Objectives
1. Provide students with a clear understanding of translation theories and methodologies;
2. Train students to translate from and into English (required), Arabic (required), and French (optional);
3. Expose students to different cultural, economic, legal and technical genres of writing;
4. Develop students’ understanding of the intrinsic cultural similarities and differences among people as expressed in the English, Arabic, and French (optional) languages;
5. Raise student awareness about the importance of conveying the exact message of a text while preserving the author’s voice, style, and culture;
6. Provide students with practical experience in the use of electronic translation programs;
7. Engage students in supervised training for six weeks in a reputable institution or organization.

Learning Outcomes
1. Apply different translation theories and methods;
2. Translate texts proficiently from and into English, Arabic, and French (optional);
3. Produce different styles of writing for different cultural, economic, legal, and technical genres;
4. Express the true cultural heritage underlying the source language [English, Arabic, and French (optional)] using terms of the target language [English, Arabic, and French (optional)];
5. Reproduce faithfully and accurately the author’s voice, style, and culture;
6. Use translation software to facilitate translation;
7. Practice professional translation in a real life setting.

CURRICULUM REQUIREMENTS

The program consists of 92 credits. In addition to the Liberal Arts Curriculum requirements (34 credits), the program requires students to complete 43 credits of core courses that provide sound language and translation skills.

Students have to choose one of two emphases: Business translation or French translation. Each emphasis comprises four translation courses (12 credits in total). Students opting to take the French emphasis will be working with three languages: Arabic, English and French. Moreover, students have to take three elective credits.
## Core Language Requirements (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARA303</td>
<td>Arabic Grammar and Syntax</td>
<td>3</td>
</tr>
<tr>
<td>ARA305</td>
<td>Arabic Philology and Lexicography</td>
<td>3</td>
</tr>
<tr>
<td>ENG308</td>
<td>Semantics and Pragmatics</td>
<td>3</td>
</tr>
<tr>
<td>TRA312</td>
<td>Contrastive Linguistics</td>
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</table>

## Core Translation Requirements (31 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRA222</td>
<td>Translation Theory and Methodology</td>
<td>3</td>
</tr>
<tr>
<td>TRA224</td>
<td>Translation of Journalistic Texts</td>
<td>3</td>
</tr>
<tr>
<td>TRA326</td>
<td>Translation of UN and International Conferences</td>
<td>3</td>
</tr>
<tr>
<td>TRA328</td>
<td>Translation of Audiovisuals</td>
<td>3</td>
</tr>
<tr>
<td>TRA330</td>
<td>Translation of Official and Legal Documents</td>
<td>3</td>
</tr>
<tr>
<td>TRA332</td>
<td>Translation of Business and Economics Texts</td>
<td>3</td>
</tr>
<tr>
<td>TRA334</td>
<td>Translation of Technical Texts</td>
<td>3</td>
</tr>
<tr>
<td>TRA342</td>
<td>Computer Applications and Tools</td>
<td>3</td>
</tr>
<tr>
<td>TRA344</td>
<td>Practicum</td>
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<tr>
<td>TRA346</td>
<td>Editing</td>
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<tr>
<td>TRA499</td>
<td>Senior Study</td>
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</table>

## Elective Emphases

### Business Emphasis (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRA460</td>
<td>Advanced Translation of Business and Economics Texts</td>
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</tr>
<tr>
<td>TRA462</td>
<td>Advanced Translation of Administrative Texts</td>
<td>3</td>
</tr>
<tr>
<td>TRA464</td>
<td>Advanced Translation of Official and Legal Documents</td>
<td>3</td>
</tr>
<tr>
<td>TRA488</td>
<td>Special Topics in Translation</td>
<td>3</td>
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</tbody>
</table>

### French Emphasis (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRA482</td>
<td>Translation of Audiovisuals</td>
<td>3</td>
</tr>
<tr>
<td>TRA484</td>
<td>Translation of UN and International Conferences (Eng-Fr./Ar-Fr.) Texts</td>
<td>3</td>
</tr>
<tr>
<td>TRA486</td>
<td>Translation of Official and Legal Documents</td>
<td>3</td>
</tr>
<tr>
<td>TRA488</td>
<td>Special Topics in Translation</td>
<td>3</td>
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</table>

## Free Electives (any 3 credits taken as one course or more)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Free elective</td>
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</table>

## SUGGESTED THREE-YEAR STUDY PLAN

### YEAR I

#### Fall Semester (15 credits)

<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>ARA201</td>
<td>Appreciation of Arabic Literature</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>LAC (Philosophy/Religion/History)</td>
<td>3</td>
</tr>
<tr>
<td>ARA303</td>
<td>Arabic Grammar and Syntax</td>
<td>3</td>
</tr>
<tr>
<td>TRA222</td>
<td>Translation Theory and Methodology</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Spring Semester (16 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG203</td>
<td>Fundamentals of Oral Comm.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>LAC (Philosophy/Religion/History)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>LAC (Science)</td>
<td>3</td>
</tr>
<tr>
<td>ETH201</td>
<td>Moral Reasoning</td>
<td>1</td>
</tr>
<tr>
<td>ENG308</td>
<td>Semantics and Pragmatics</td>
<td>3</td>
</tr>
<tr>
<td>TRA222</td>
<td>Translation of Journalistic Texts</td>
<td>3</td>
</tr>
</tbody>
</table>
### YEAR II

#### Fall Semester (16 credits)
- **LAC English Literature** 3
- **TRA332** Trans. of Bus. and Econ. Texts 3
- **TRA346** Editing 1

#### Spring Semester (15 credits)
- **LAC (Social Sciences)** 3
- **TRA326** Trans. of UN and Intern. Conf. 3
- **TRA328** Trans. of Audiovisuals 3
- **TRA330** Trans. of Official and Legal Docs. 3
- **TRA342** Computer Apps and Tools 3

### YEAR III

#### Fall Semester (14 credits)
- **HLT201** Basic Health 1
- **TRA334** Translation of Technical Texts 3
- **TRA460/482 (emph.)** Adv. Trans. of Bus. and Econ. Texts/Trans. of Audiovisuals 3
- **TRA462/484 (emph.)** Adv. Trans. of Admin. Texts/Trans. of UN and Int’l Conf. Texts 3
- **CSC201** Computer Applications 1
- **TRA444** Practicum 3

### Spring Semester (16 credits)
- **FED231** Modern Dance 1
- **TRA646/486 (emph.)** Advanced Translation of Official and Legal Documents/Translation of Official and Legal Documents 3
- **TRA488 (emph.)** Special Topic in Translation 3
- **TRA499** Senior Study 3
- **TRA499** Free Elective 3

* LAC = Liberal Arts Curriculum; ARA = Arabic; ENG = English.
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 and 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 program is to offer a quality Arabic program that appeals to a range of student interests and attracts graduate students with a strong liberal arts background who hope to enhance their role as well-rounded individuals.

GOALS OF CURRICULUM

Educational 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 are required for the minor in Arabic Language and Literature.
- Three mandatory courses in language, classical literature and modern literature. The language course is selected from: ARA303, 304, 305. The classical literature course is selected from: ARA320, 323, 324, 325. The modern literature course is selected from: ARA341, 342, 343, 344.
- Three of the B.A. in Arabic Language and Literature courses offered by the department.

### Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARA303</td>
<td>Arabic Grammar and Syntax</td>
<td>3</td>
</tr>
<tr>
<td>ARA320</td>
<td>Pre-Islamic and Umayyad Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ARA325</td>
<td>Classical Prose</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>
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</tbody>
</table>

### Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARA313</td>
<td>Creative Writing</td>
<td>3</td>
</tr>
<tr>
<td>ARA323</td>
<td>Abbasid Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ARA343</td>
<td>Modern Arabic Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ARA344</td>
<td>Trends in Modern Arabic Literature</td>
<td>3</td>
</tr>
</tbody>
</table>
Minor in English

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 Language Instruction 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 students for a variety of professions and gives them the opportunity to have a prerequisite education that qualifies them to pursue a postgraduate degree in English literature or linguistics.

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.

Specifically, the minor in English offers 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 U.S. 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.

GOALS OF CURRICULUM

Learning Objectives
The minor:
8. Prepares the students for the job market by adding to their majors through a Minor in English;
9. Enhances the literary and linguistic knowledge of students who are not majoring in English;
10. Develops students’ research and writing skills through active learning and the promotion of critical thinking;
11. Prepares students who are not majoring in English to join the M.A. program in English at LAU after completing the B.A.;
12. 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:

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

**CURRICULUM REQUIREMENTS**
For a minor in English, students must choose 18 credits of the following courses:

**Core Requirements (9 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG351</td>
<td>Early American Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENG213</td>
<td>Introduction to Language</td>
<td>3</td>
</tr>
<tr>
<td>ENG319</td>
<td>History of the English Language</td>
<td>3</td>
</tr>
</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.

**Literature**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG325</td>
<td>Renaissance Drama</td>
<td>3</td>
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<tr>
<td>ENG326</td>
<td>Restoration and Neoclassical Literature</td>
<td>3</td>
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<tr>
<td>ENG336</td>
<td>Romantic and Victorian Poetry</td>
<td>3</td>
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<tr>
<td>ENG339</td>
<td>20th century American Novel</td>
<td>3</td>
</tr>
<tr>
<td>ENG474</td>
<td>Topics in Literature and Culture</td>
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**Language**

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>ENG214</td>
<td>English Grammar</td>
<td>3</td>
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<tr>
<td>ENG308</td>
<td>Semantics and Pragmatics</td>
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<td>ENG310</td>
<td>Sociolinguistics</td>
<td>3</td>
</tr>
<tr>
<td>ENG307</td>
<td>Introduction to Psycholinguistics</td>
<td>3</td>
</tr>
<tr>
<td>ENG473</td>
<td>Topics in English Language</td>
<td>3</td>
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</tbody>
</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."
Master of Arts (M.A.) in Comparative Literature

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

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

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

MISSION

The mission of the graduate program in Comparative Literature is to teach, train, and conduct research in literature and trans-cultural 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.

GOALS OF CURRICULUM

Learning 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;

CURRICULUM REQUIREMENTS
Advanced training is offered in three areas of study:

6. **Literature and other cultural productions.** Students will achieve broad intercultural competence in genre, period and theme;
7. **Theoretical frameworks.** Students will explore a range of literary and cultural theories and demonstrate significant mastery of at least one;
8. **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:

**18 credits of core courses:**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CLT801</td>
<td>Methodologies of Comparative Literature</td>
<td>3</td>
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<tr>
<td>CLT803</td>
<td>Literary Theory I</td>
<td>3</td>
</tr>
<tr>
<td>CLT804</td>
<td>Literary Theory II</td>
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<td>CLT820</td>
<td>Period</td>
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<td>CLT830</td>
<td>Themes</td>
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<tr>
<td>CLT840</td>
<td>Genre</td>
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**6 credits of coursework in one of the following:**

- A national literature and culture.
- A non-literature cognate (graduate-level courses in a field of interest such as anthropology, film, history, music, philosophy, psychology, etc...).

**A written Preliminary Exam, and a 6-credit Master’s Thesis, CLT899.**

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 during which the examiners decide 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 commencing the work on their thesis.
COURSE DESCRIPTIONS

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 ARA101, 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.

ARA303 Arabic Grammar and Syntax [3-0, 3 cr.]
This course looks into advanced elements of Arabic grammar, syntax and issues of ‘arab. It trains students to analyze sentence structures.

ARA304 Arabic Linguistics [3-0, 3 cr.]
This course addresses principles and trends of linguistics in light of modern linguistic theories and descriptive methodologies as they apply to Arabic.

ARA305 Arabic Philology and Lexicography [3-0, 3 cr.]
This course deals with major issues of Arabic philology and offers an overview of Arabic lexicography. Students will be asked to consider theoretical issues in analyzing lexical and lexicographic material. This course tackles also issues related to phonology and elocution.

ARA310 Classical Arabic Rhetoric and Literary Criticism [3-0, 3 cr.]
This course addresses basic features of Arabic rhetoric and literary criticism, and the dialectical relationship between them. Representative texts will be studied to illustrate theories presented throughout the course.

ARA311 Arabic Prosody [3-0, 3 cr.]
This course introduces the meters of classical Arabic poetry. It also deals with other elements involved in the formation of classical poetry such as rhyme and verbal melody. The course also surveys the changes in poetic form that emerged in later periods.

ARA312 Contemporary Literary Theory and Criticism [3-0, 3 cr.]
This course introduces several modern and postmodern theories of literature and literary criticism such as structuralism, deconstruction and feminism. Representative literary texts will be an integral part of the course.

ARA313 Creative Writing [3-0, 3 cr.]
This course exposes students to various literary styles and artistic forms of writing. Students are given the opportunity to implement the skills they learn in creative writing of their own.

ARA314 Technical Arabic [3-0, 3 cr.]
This course trains students in the use of the Arabic technical lexicon necessary for a variety of professional fields such as business and finance with emphasis on the Arabic language which is currently used in modern fields of technology.

ARA320 Pre-Islamic and Umayyad Poetry [3-0, 3 cr.]
A survey of ancient Arabic poetry from the pre-Islamic period to the end of the Umayyad era. The course focuses on major issues and problems reflected in the poetry of this period.

ARA323 Abbasid Poetry [3-0, 3 cr.]
A survey of the poetic trends, themes and stylistics of the Abbasid period. The course focuses on the major figures of poetry in that period, and relates Abbasid poetry to the cultural changes in that period.

ARA324 Andalusian Literature [3-0, 3 cr.]
A study of Arabic poetry and prose in Andalusia focusing on the development of new genres and literary art-forms in that period.
ARA325 Classical Prose [3-o, 3 cr.]
A survey of the development of Arabic literary prose from the 2nd/8th to the 5th/11th centuries. The course introduces major authors and works that characterize the Arabic prose of the period.

ARA326 Arab Civilization and Culture [3-o, 3 cr.]
This course is a survey of Arab civilization and culture. It emphasizes aspects of cultural development in thought, sciences, social life and arts including painting, music, singing, calligraphy, crafts, etc.

ARA327 Sufi Literature [3-o, 3 cr.]
This course surveys the rise of ascetic and mystical tendencies in Islam including the historical development and central ideas of Sufism. It pays special attention to the poetic expression of the mystical experience. Representative texts will be read for analysis and aesthetic appreciation.

ARA328 Arabic Folk Literature [3-o, 3 cr.]
This course surveys the development of classical and premodern Arabic folk literature. Selections from texts such as The Arabian Nights, Sirat Antara and Sirat Bani Hilal are studied and analyzed in order to follow the development of this genre throughout history.

ARA329 Travel Literature [3-o, 3 cr.]
This course surveys a selection of non-fictional texts categorized under 'Travel Literature'. The course considers a number of travel narratives, paying attention to elements of history and context as well as narrative techniques, structure and themes in this particular genre.

ARA341 Modern Arabic Novel and Short Story [3-o, 3 cr.]
This course introduces the novel and the short story as literary forms. It explores various elements that make up the novel such as plot, characterization, style, genre and theme, as well as its historical, cultural, and thematic contexts.

ARA342 Arabic Drama [3-o, 3 cr.]
This course addresses the emergence and development of drama as a genre in Arabic literature. Through careful readings of representative plays, students survey various themes and issues prominent in Arabic drama along with their social and political contexts.

ARA343 Modern Arabic Poetry [3-o, 3 cr.]
This course focuses on modern Arabic poetry from the late 19th century up to the present time. Selected samples of poetry are studied and analyzed.

ARA344 Trends in Modern Literature [3-o, 3 cr.]
This course deals with modern literary trends from classicism to surrealism. Students are trained in intensive analysis of selected texts in Arabic literature that are representative of the course content.

ARA488 Topics in Arabic Language and Literature [3-o, 3 cr.]
This course deals with a topic that is beyond the normal scope of the listed courses in the B.A. program. It includes new approaches to language, literature or civilization as well as a special theme.

ARA499 Senior Study [3-o, 3 cr.]
A course designed for seniors to employ the techniques of modern literary criticism by conducting intensive research into a selected literary figure, trend or work.

SPECIAL ARABIC

SAR105 Colloquial Arabic I [3-o, 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.
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.
Prerequisites: ENG101 English I.

CST202 Cultural Studies II [3-0, 3 cr.]
This course traces the major developments in the global human experience from the 14th through the 18th Centuries. Source material is drawn from the humanities, the fine arts, the social sciences, and the natural sciences, and is organized thematically around key topics.
Prerequisites: ENG101 English I.

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, to the present day. Source material is drawn from the humanities, the fine arts, the social sciences, and the natural sciences,
and is organized thematically around key topics.

**Prerequisites:** ENG101 English I.

**ENGLISH LANGUAGE AND LITERATURE**

**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.

**Prerequisites:** 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, and practices in platform speaking, in exposition and persuasion. Emphasis is placed on the use of correct and effective language and organizational skills in preparing, delivering and evaluating different types of oral presentations.

**Prerequisites:** ENG102 English II, or EEE score of 650 and above, or its equivalent.

**ENG211 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 Bijns.

**ENG212 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 ENG211. Topics and writers may include: Montaigne, Cervantes, Baroque poetry, Molière, Goethe, German romanticism, Chekhov, Kafka.

**ENG213 Introduction to Language [3-0, 3 cr.]**
Surveys 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.

**Prerequisites:** ENG102 English II.

**ENG214 English Grammar [3-0, 3 cr.]**
Studies grammatical structures and offers a critical analysis of the descriptive uses of grammar.

**ENG303 Literary Linguistics [3-0, 3 cr.]**
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.

**Prerequisites:** ENG102 English II.

**ENG307 Introduction to Psycholinguistics [3-0, 3 cr.]**
Examines the influence of psychological factors on the development, use, and interpretation of language, and investigates the relationship between language and thought. It surveys experimental and empirical studies of linguistic usage and development of language.

**Prerequisites:** ENG102 English II.

**ENG308 Semantics and Pragmatics [3-0, 3 cr.]**
Introduces theoretical and empirical approaches to linguistic semantics and pragmatics in relation to language encoded meanings as part of language syn-
ENG310 Sociolinguistics [3-o, 3 cr.]
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.
Prerequisites: ENG102 English II.

ENG319 History of the English Language [3-o, 3 cr.]
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.
Prerequisites: ENG102 English II.

ENG323 Renaissance Drama [3-o, 3 cr.]
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.
Prerequisites: ENG102 English II.

ENG324 Medieval Literature [3-o, 3 cr.]
Surveys the Medieval origins of English literature until the late 15th century across the genres of lyric, epic, romance and drama.
Prerequisites: ENG102 English II.

ENG325 Renaissance Poetry [3-o, 3 cr.]
Examines the genres of lyric and epic poetry from the 16th and 17th centuries.
Prerequisites: ENG102 English II.

ENG326 Restoration and Neoclassical Literature [3-o, 3 cr.]
This course places the genres of poetry, drama and the prose essay within their historical contexts of the late 17th and the early 18th centuries.
Prerequisites: ENG102 English II.

ENG328 Early Novel [3-o, 3 cr.]
This course focuses on the emergence and early development of the novel in English starting in the 17th century in light of its historical and literary contexts.
Prerequisites: ENG102 English II.

ENG336 Romantic and Victorian Poetry [3-o, 3 cr.]
This course examines lyric and narrative poetry throughout the 19th century, primarily British and American.
Prerequisites: ENG102 English II.

ENG339 19th-century British Novel [3-o, 3 cr.]
This course explores the novel of 19th-century England according to how it addresses major thematic and aesthetic concerns of the period.
Prerequisites: ENG102 English II.

ENG342 Modernism and Beyond [3-o, 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 understand a rich artistic, social and intellectual period.
Prerequisites: ENG102 English II.

ENG345 The 20th-Century British Novel [3-o, 3 cr.]
This course tracks the British novelistic production throughout the 20th century. Questions explored may include the novels’ relation to colonialism and its legacies, or the novels’ social and historical contexts of production.
Prerequisites: ENG102 English II.

ENG346 Contemporary Culture [3-o, 3 cr.]
This course explores contemporary culture through literature, film, and other media using a British or American cultural studies approach. Topics may include the ways in which cultural production shapes and is shaped by politics, race, class, religion, gender, or globalization.
Prerequisites: ENG102 English II.
ENG348 Postcolonial Anglophone Literatures [3-0, 3 cr.]
This course explores the English-language literary production from areas outside Europe and North America. Empire, encounter, diaspora, immigration, and exile may be among the objects of study.
*Prerequisites: 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. The course traces the emergence of an American “voice” in a variety of genres such as autobiography, poetry, the novel, essays and speeches.
*Prerequisites: ENG102 English II.*

ENG352 20th-Century American Novel [3-0, 3 cr.]
This course tracks American novelistic production throughout the 20th century. Issues explored may include war, race, the Great Depression, the Cold War and neo-imperialism.
*Prerequisites: ENG102 English II.*

ENG354 Theories of Literature and Culture [3-0, 3 cr.]
This course examines theories of literary and cultural production and reception. The course may be arranged chronologically or according to schools and approaches.
*Prerequisites: ENG102 English II.*

ENG366 Creative Writing [3-0, 3 cr.]
This course develops creative writing in a variety of 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.
*Prerequisites: ENG102 English II.*

ENG372 Comparative and World Literatures [3-0, 3 cr.]
This course concentrates on the particular insights and problems attendant to examining 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.
*Prerequisites: 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, and the instructor’s consent.*

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 instructor’s consent.*

ENG487 Topics in Drama and Theater [3-0, 3 cr.]
This course is cross-listed with COM487. The course explores ideas of form, convention, style and context in drama and theater. It focuses on different dramaturgical and theatrical approaches to specified topics or theater trends or schools (Modern Drama, Postmodernism, Documentary Drama, Gender and Theater, Popular Theater...) Course may be repeated under different topics each semester. Students may take it more than once.
*Prerequisites: COM342 Play Production I, or the consent of instructor, and senior standing. ENG102 English II, senior standing, and the consent of the Instructor.*

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: senior standing, and the consent of the instructor.*
*Prerequisites: ENG102 English II, senior standing, and the consent of the Instructor.*
ETHICS

ETH201 Moral Reasoning [1-o, 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.

ETH205 Ethics in Leadership [3-o 3 cr.]
This course is an introduction to ethics in leadership. It provides analysis and discussion on how ethics and leadership theories evolved over time, how they are applied today, and how they influence modern thinking and behavior. The course is highly interactive, supported by empirical analysis and class discussions. The student will engage actively in case analysis and debates. Vases are selected from popular literature, research journals, textbooks, and audiovisual media.

GERMAN

GER201 Beginning German [3-o, 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.

GER202 Beginning German II [3-o, 3 cr.]
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, audiovisual 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-o, 3 cr.]
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 Arab 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 [3-o, 3 cr.]
This course introduces the discipline of history and provides students with the necessary historical and academic skills through acquainting them with different ways of reading, writing, and interpreting historical texts and documents. The core of this course is to enable students to conduct their own historical research. A broad overview of historical methodologies and historiography (‘the history of history’) also shows history’s unique place among the Humanities as well as the Social Sciences.

HST220 The Ancient World, Pre-History to Pericles [3-o, 3 cr.]
This course traces the history from the first known civilizations, focusing in particular on settlements arising around the major river systems such as the Nile, Tigris, Euphrates and the Indus river valley, to the archaic and classical Greek city states such as Athens and Sparta. The course may focus on Sumerian, Babylonian, Egyptian, Phoenician, Semitic and Greek culture, as well as other cultures of the Near and Middle East. Possible topics may include the introduction of Hammurabi’s law-code, Egyptian-Phoenician trade relations, the development of writing, the Trojan War, the Spartan and Athenian constitutions and the Persian Wars.
HST221 The Ancient World, Greece and Rome [3-0, 3 cr.]
This course introduces the history of ancient Greece and Rome. Starting with the development of poleis in Greece and Rome from the 8th century BCE onwards, and ending with the reign of the emperor Justinian in the 6th century AD, the course covers landmark events such as the Persian Wars (490-449 BCE), the Peloponnesian wars (431-404), the conquests of Alexander the Great (356-323 BC), the imperial expansion of Rome from the Punic Wars onwards, the rise of Christianity and the Edict of Milan (312 AD), the rise of Constantinople as imperial capital, and finally the various attacks on Rome by Huns, Goths and Germans in the 5th and 6th centuries. Students will engage with a variety of primary and secondary sources. Famous ancient authors such as Plato, Herodotus and Cicero may be discussed, but we will also look at archaeological remains, classical art and epigraphy. The course may focus on themes such as the birth of democracy, imperialism, causes for decline and progress and the ancient economy.

HST230 History of Lebanon, from Antelias Man to the Ottoman Conquest (1516) [3-0, 3 cr.]
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, 3 cr.]
Tracing the history of Lebanon from the rise of the Imarah to the 1989 Ta’if agreement, this course focuses on the formation of the Lebanese polity and identity and its place in the wider Arab world. It may deal with pivotal figures such as Fakhr Ed-Deen and Emir Bachir, the role of the Maronites and their relations with France and the Vatican, the Ottoman period, the impact of the Tanzimat and the rise of the Mutasarrifiya. Key events and developments in the 20th century include the First World War, the French Mandate, Lebanese independence in 1943, the National Pact, the 1958 events, and the 1975-1990 War. How could the initial years of prosperity lead to the outbreak of war in 1975? The interaction between internal factions and communities and outside powers will be emphasized.

HST240 History of the Arab Peoples [3-0, 3 cr.]
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 common people in the countryside, the course provides students with a rich portrait of Arab culture and history. 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 could be germane to the presentation. How the Arabs interacted with Turks, Persians and Europeans and how these outsiders perceived the Arabs could also be central to the course’s thematic approach.

HST241 History of Islam in the Middle East [3-0, 3 cr.]
This course may either provide an overview of the history of the Islam from its conception in the 7th century to the present-day or focus on particular themes
in the history of Islam. As well as introducing students to the history of one of the world’s major religious faiths, the course examines Islam’s development as a creed and a complete way of life. A particular focus will be the challenges arising from Islam’s relations with the non-Muslim world. The historical survey may include such pivotal events and developments as the life and message of the Prophet Mohammed, the first four wise Caliphs, the Sunni-Shiite split, the schools of Islamic jurisprudence, the shari’a and the five pillars. The Umayyad and Abbasid Empires and the expansion of Islam will be discussed. Important topics in the medieval history of Islam are the flowering of Islamic culture, the role of the Ayyubids, Fatimids and Seljuks, the Crusades, the Mongol invasion, the conversion of Iran to Shiism and the emergence of the Ottomans. In modern history we might focus on Whahabism, Abdu and Afghani, Qutub and Banna, and Khomeini and Bin Laden.

HST242 Europe and the Middle East (1798-1956) [3-0, 3 cr.]
This course provides students with an overview of European-Middle Eastern relations during the 19th and early 20th centuries. Introducing students to the stormy and complex interactions between European powers and the peoples and states of the Middle East, the course will not just deal with the political, military and diplomatic events but also with their social, economic and cultural impact on both Europe and the Middle East. The period reveals both Europe and the Middle East evolving rapidly, but not always in tandem. Examples might include the history of Egypt from Napoleon’s invasion in 1798 to the 1952 officer’s revolution led by Nasser; the history of the Ottoman Empire from the Tanzimat to its decline; British, French, German and Russian interests in the Middle East; the impact of the two World Wars, Mustafa Kemal Ataturk and the creation of modern Turkey and the rise of the Arab state system.

HST243 Economic History of the Middle East [3-0, 3 cr.]
This course provides a country by country account of economic development in the Middle East and North Africa from early modern to modern times. Emphasis may be put on the shift from early cottage industries to the rudimentary irrigation schemes and cotton cultivation in Mohammad Ali’s Egypt. The collapse of Ottoman finances and the growing dependence on international financiers may be another topic as well as the increased international competition in the textile and cotton industry. The importance of the region for the major trade routes between Europe and Asia will be emphasized throughout. Key events are the opening of Suez Canal in 1869, the High Dam project and the discovery of oil in Arabia. 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, 3 cr.]
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. It aims to shed light on the historical progression of the conflict and the external players impacting its development. The course also assesses the Arab responses to Israel as well as the internal evolution of the Jewish state from frontier kibbutzim to nuclear power. Among events and developments leading up to 1948 the course may zoom in on the conception of Zionism, relationships between Zionists and the British and Ottoman Empires, early migration into Palestine and the impact of the two World Wars and the Holocaust. It will also address international responses to the existence of Israel arising from Arab and Palestinian nationalism, the Arab-Israeli wars, the emergence of the Palestinian Fedayeen and the Palestine Liberation Organization, the impact of Israel on surrounding Arab states and the Islamist factor.

HST301 Europe in Late Antiquity (410–1066) [3-0, 3 cr.]
This course focuses on Europe in Late Antiquity and the Early Middle Ages. Through either a historical overview or a thematic approach it will clarify how the Roman Empire gave way to a feudalistic Europe. The impact of Germanic tribes and the development of Christianity will be assessed to explain the distancing between East and West Europe culminating in the 1054 schism and the investiture struggle between popes and kings over who has superior power. Other possible topics may include the development of monasticism, the rise
of Clovis and Charlemagne, the writings of key authors such as St. Augustine, Boethius and the Venerable Bede, Islamic conquests in Spain and Sicily, and the later conquests of the Normans.

**HST302 Medieval Europe (1066–1453) [3-0, 3 cr.]**
This course concentrates on European history during the high and late Middle Ages. It may either provide a historical overview from the Norman conquest of Britain in 1066 to the fall of Constantinople in 1453, or offer a more thematic approach. Possible themes may include the Crusades, the founding of Europe’s great universities, the rise of scholasticism, Gothic architecture, the medieval guilds, the Italian city-states such as Florence and Venice and the Hundred Years War. Students will have the opportunity to engage with both secondary and primary sources, among which can be the works of great thinkers and writers such as Abelard, Thomas Aquinas, Boccaccio and Dante among many others, but also archaeological and material sources that reflect on everyday life in medieval Europe.

**HST303 Early Modern Europe (1450–1750) [3-0, 3 cr.]**
This course sheds light on the history of Europe in the Early Modern period through either a historical overview from the Renaissance to the beginnings of the Industrial Revolution, or a more thematic approach. Possible topics include the Protestant Reformation and the Catholic Counterreformation, the Age of Discovery, Renaissance humanism, encounters between Christians, Muslims and Jews, Tudor and Stuart England as well as social and economic developments such as the rise of mercantilism. It may also focus on the beginnings of the scientific revolution through the contributions of scientists such as Copernicus, Galileo and Newton.

**HST304 Modern Europe (1750–1945) [3-0, 3 cr.]**
This course treats the period starting with the beginnings of the Industrial Revolution in Britain and ending with the Second World War. It may either provide a historical overview, covering landmark events such as the French and American Revolutions, the Napoleonic era, the 1848 revolutions, the 1854 Crimean War, the unification of Germany and Italy, the Great War and the 1917 Bolshevik Revolution and the Second World War. It could also approach the history of Europe from a more thematic approach focusing on themes such as the rise of nationalist and socialist ideologies, the idea of progress and evolutionism, the abolition of slavery and the end of colonialism, fin-de-siècle Vienna and Paris, developments in modern art and modern philosophy.

**HST305 Contemporary Europe (1945–1989) [3-0, 3 cr.]**
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. In addition to the history of the Cold War, the course may also address topics such as the Universal Declaration of the Human Rights, the civil rights movement, feminism, the 1968 student revolutions and the technological and information revolutions.

**HST330 History of Byzantium [3-0, 3 cr.]**
This course deals with the history of Byzantium from the foundation of Constantinople by Constantine the Great in 330 until the fall of the city in 1453. It may either offer a historical overview along dynastic lines, or a more thematic approach. Possible themes include the relations of Byzantium with emerging powers in the East and the West, the religious controversies such as Iconoclasm and the 1054 schism, emperors and empresses, Byzantine cultural and architectural accomplishments in Constantinople and other cities, monasticism, and the Crusades.

**HST331 History of Russia [3-0, 3 cr.]**
This course may either chronicle the history of Russia from the first Rhos until Vladimir Putin, or focus on a particular theme. Possible topics include the conversion of Slavs to Christianity in 988 and subsequent relations between the Russians and the Orthodox Church, the establishment of Moscow and the institution of the Czar, international relations and isolation, serfdom and the emancipation of the Serfs, important Czars such as Ivan IV (the Terrible), Peter
HST335 History of Central and South America [3-o, 3 cr.]
This course could provide a historical overview of South and Central America from the Incas, the Mayans and the Aztecs to Fidel Castro’s long reign in Cuba. It may also focus on the colonization of America and the 19th century struggles for independence, the impact of slavery on American societies, important figures such as Simon Bolivar, Cortes, Allende, Che Guevara and Fidel Castro, the exploitation of the Amazon rainforest and the cultivation of drugs, among many other themes. It may either cover the whole of Central and South America or zoom in on a particular country.

HST336 History of Africa [3-o, 3 cr.]
This course can focus on any theme in African history from the earliest human settlements to the Apartheid regime in South Africa. It could either survey a particular period in history or choose a particular theme to emphasize, such as the “Scramble for Africa”, the impact of the slave trade, the role of newcomers from the Romans and the 5th century influx of Vandals to the Islamic conquests and the European colonists and African nationalism and fights for independence after World War II.

HST337 History of Ideas [3-o, 3 cr.]
This course offers students a glimpse into the exiting world of intellectual history. It can either immerse the students into the intellectual tenor of a particular period through a discussion of this age’s interplay between history, philosophy, theology, literature and the arts. Or it can survey the history of a particular set of ideas, or an ideology. Students will engage primarily with primary sources, thus providing them with a firsthand feel for the history of ideas.

HST338 History of Science [3-o, 3 cr.]
This course will provide insight into the history of science through a focus on the development of a particular scientific field throughout history or science in general during a particular period. A key question is how science and society have impacted (and continue to impact) on each other.
HST342 Topics in the History of Religion [3-0, 3 cr.]
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 and follow its unfolding threads in one or more religious tradition. The major world religions usually provide the subject matter for this course: Judaism, Christianity, Islam, Mormonism, Buddhism, Hinduism, Confucianism, Shinto, Taoism, Sikhism, varieties of animism. In addition, the history of atheism may also be the focus of this course.

HST343 Topics in Economic History [3-0, 3 cr.]
This course may concentrate on any theme in economic history, whether this is the development of economic theory itself, a discussion of economic decline and or progress in a particular region or period, the interplay of economy and ideology in the formation of ideologies such as socialism and capitalism, or the history of a particular economic sector (agriculture, industry, finance). 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, 3 cr.]
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, causes of historical decline, and much more. Specific periods to be covered can also be designated.

HST449 Senior Study [3-0, 3 cr.]
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
ITA201 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.

ITA202 Beginning Italian II [3-0, 3 cr.]
A beginning course level in standard Italian designed for students with prior knowledge of Italian grammatical structures, some comprehension and speaking skills. The aim of this course is to firstly consolidate the knowledge of Italian and then extend it through written texts, audiovisual 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 Italian-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.
Pre-requisite: ITA 201 or equivalent.

LATIN
LAT201 Beginning Latin [3-0, 3 cr.]
A beginning course in Classical Latin designed for students who have no previous knowledge of the language. The course aims at basic proficiency in the language skills: reading, writing, listening and speaking focusing on the use of Classical Latin, acquisition of vocabulary and developing standard grammatical structures, reading of short texts and writing at the paragraph level. Emphasis is placed on students’ ability to read passages from simple authentic texts such
as Horace, Caesar, Livy and Catullus, while cultivating an appreciation for the richness and diversity of the culture of Rome. A communicative content task-based approach is used and opportunities are given to participate in activities and events.

LAT202 Beginning Latin II [3-o, 3 cr.]
A second beginning course in Classical Latin designed for students who already have a primary contact with Latin grammatical structures, together with some comprehension and speaking skills. The aim of this course is to consolidate the initial knowledge of Latin gained in the Beginning Latin I and then extend it through written texts, audiovisual material, role-play and speaking practice, together with a broader knowledge of the grammar of Latin, and exposure to a range of simple classical literature. There will also be an emphasis on the culture of Republican and Imperial Rome. A communicative content task-based approach is used and opportunities are given to participate in activities and events.

PHILOSOPHY

PHL101 Introduction to Philosophy [3-o, 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 [3-o, 3 cr.]
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 [3-o, 3 cr.]
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 [3-o, 3 cr.]
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.

PHL210 Critical and Creative Thinking [3-o, 3 cr.]
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.

**PHL211 Symbolic Logic [3-0, 3 cr.]**
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 [3-0, 3 cr.]**
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 [3-0, 3 cr.]**
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 [3-0, 3 cr.]**
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).

**PHL311 Philosophy of Religion [3-0, 3 cr.]**
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 [3-0, 3 cr.]**
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 [3-0, 3 cr.]**
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.
PHL323 Philosophy of History [3-0, 3 cr.]
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 [3-0, 3 cr.]
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, Feyerabend, Holton, and A. W. Moore, and from the writings of scientists themselves, such as Darwin, Maxwell, Mach, Poincaré, Einstein, Heisenberg, Eiseley, Schrödinger, and Hawking.

PHL325 Philosophy of Mind [3-0, 3 cr.]
Themes to be discussed are the nature of mind, the argument between materialists and non-materialists, artificial intelligence, 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 [3-0, 3 cr.]
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 [3-0, 3 cr.]
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 [3-0, 3 cr.]
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-Jabiri, Hassan Hanafi, Seyyed 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.

PHL330 Individual Philosophers [3-0, 3 cr.]
The course is an in-depth study of the work of a particular philosopher, and reflects the sustained rigor and depth of the approach of the philosopher to universal questions. It also examines the work of scholars who have studied the thought and works of individual philosophers. This helps students to appreciate with great power and conviction.
the nature and virtue of the scholarly tradition. Primary as well as secondary sources are examined in order to provide a comprehensive overview of the life, works, thought and influence of the philosopher.

**PHL401 Special Topics [3-0, 3 cr.]**
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.

**REL318 Religious Thought and Conflict Resolution. [3-0, 3 cr.]**
Religion has offered people a framework to deepen and organize their beliefs, thought and practice; they have also offered believers norms by which to live and to interact with others. While many consider religion to have often been at the source of conflicts, others look at religion as the way of diffusing conflict and overcoming them. Among other things, the course looks at decisions made by religious leaders and institutions that helped reduce conflicts at key moments in history and reviews the contribution of religious thought to building tolerance, encouraging dialogue and initiating processes for conflict resolution and transformation.

**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**

**SPA201 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.

SPA202 Beginning Spanish II [3-0, 3 cr.]
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.

TRANSLATION

TRA222 Translation Theory and Methodology [Eng. › Ar.] [3-0, 3 cr.]
Introduces the history of translation and the different schools of thought and translation methods.

TRA224 Translation of Journalistic Texts [Eng. › Ar.] [3-0, 3 cr.]
Trains students to deal with various types and aspects of contemporary texts dealt with by the media including news, speeches, articles, reports, and other journalistic texts.
Pre-Requisite: TRA222.

TRA312 Contrastive Linguistics [3-0, 3 cr.]
Introduces descriptive linguistics, Standard English and Standard Arabic varieties. Provides students with a comparative analysis of English and Arabic phonology, morphology, syntax and lexis.
Prerequisites: ENG308

TRA326 Translation of UN and International Conferences [Eng. › Ar.] [3-0, 3 cr.]
Familiarizes students with diverse texts produced by international conferences and UN organizations such as UNDP, UNRWA, and ESCWA among others.
Prerequisites: ARA203, ARA305, ENG308, TRA312, TRA222.
Co-requisites: TRA312.

TRA328 Translation of Audiovisuals [Eng. › Ar.] [3-0, 3 cr.]
Introduces students to the techniques used in the artistic translation of motion pictures and TV programs. Emphasizes the comprehension and appropriate translation of commercial advertisements, posters, slogans, headlines, cartoons and caricatures using language that recreates the effect of the original.
Pre- Requisites: ARA203, ARA305, ENG308, TRA222.

TRA330 Translation of Official and Legal Documents [Eng. › Ar.] [3-0, 3 cr.]
Trains students in the translation of various kinds of official documents (certificates, transcripts and records) and legislative texts relating to courts, contracts, agencies and corporations. Aims at familiarizing students with the basic terminologies of the field.
Pre-Requisites: ARA203, ARA305, ENG308, TRA312, TRA222.

TRA332 Translation of Business and Economics Texts [Eng. › Ar.] [3-0, 3 cr.]
Trains students in translating diverse texts relating to business, economics, marketing, commerce, finance, banking, tax, and insurance using the proper register.
Pre-Requisites: ARA203, ARA305, ENG308, TRA312, TRA222.

TRA334 Translation of Technical Texts [Eng. › Ar.] [3-0, 3 cr.]
Trains students in translating scientific, technical and technological texts, and familiarizes them with scientific interpretation and terminology.
Pre-Requisites: ARA203, ARA305, ENG308, TRA312, TRA222.
TRA342 Computer Applications and Tools [3-o, 3 cr.]
Familiarizes students with state-of-the-art tools, computer aids, and translation software.

TRA346 Editing (Eng. ›› Ar.) [1-o, 1 cr.]
Trains students in editing and proof-reading various types of translated texts to ensure the clarity of message and the correct use of language forms and mechanics.

TRA444 Practicum [3-o, 3 cr.]
Provides students with supervised training for six weeks in a reputable institution or organization, preferably in the students’ chosen emphasis. Students submit a report about their experience.

TRA460 Advanced Translation of Business and Economics Texts (Eng. ›› Ar.) [3-o, 3 cr.]
An advanced course involving the translation of diverse texts relating to business, economics, marketing, commerce, finance, banking, tax, and insurance using the proper registers. 
Prerequisites: TRA332.

TRA462 Advanced Translation of Administrative Texts (Eng. ›› Ar.) [3-o, 3 cr.]
Familiarizes students with the translation of various documents pertaining to hospitals, universities, political and business administration as well as hospital management.

TRA464 Advanced Translation of Official and Legal Documents (Eng. ›› Ar.) [3-o, 3 cr.]
An advanced course involving various kinds of official documents (certificates, transcripts and records) and legislative texts relating to courts, contracts, agencies and corporations. Aims at familiarizing students with the basic terminologies of the field.
Prerequisites: TRA330.

TRA482 Translation of Audiovisuals (Eng. › Fr.; Ar. › Fr.) [3-o, 3 cr.]
Introduces students to the techniques used in the artistic translation of motion pictures and TV programs from and into French. Emphasizes the comprehension and appropriate translation of commercial advertisements, slogans, posters, headlines, cartoons and caricatures from and into French using language that recreates the effect of the original.

TRA484 Translation of UN and International Conferences Texts (Eng. › Fr./Ar. › Fr.) [3-o, 3 cr.]
Familiarizes students with the translation from and into French of diverse texts produced by international conferences and UN organizations.

TRA486 Translation of Official and Legal Documents (Eng. › Fr./Ar. › Fr.) [3-o, 3 cr.]
Familiarizes students with the basic legal terminologies of the field in French and trains them in the translation of various kinds of official documents (certificates, transcripts and records) and legislative texts relating to courts, contracts, agencies and corporations.

TRA488 Special Topic in Translation [3-o, 3 cr.]
Focuses on a specific translation topic related to the field.

TRA499 Senior Study [3-o, 3 cr.]
An independent scholarly research on a topic chosen by the student and related to his/her study emphasis. Involves an original research paper or the translation of a 20-30 page text under the instructor’s supervision.

COMPARATIVE LITERATURE (GRADUATE)

CLT801 Methodologies of Comparative Literature [3-o, 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 [3-0, 3 cr.]
This course examines the theories of literature, and the representation from classical Greece and Rome, the Medieval Mediterranean, and the European Renaissance. It is organized according to major questions that have traditionally generated debate, and that continue to resonate in contemporary literary and cultural studies.

CLT804 Literary Theory II [3-0, 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 [3-0, 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 [3-0, 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 [3-0, 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 [3-0, 3 cr.]

CLT899 Thesis [6 cr.]
Department of Natural Sciences

PROGRAMS/DEGREES AVAILABLE

- Bachelor of Science (B.S.) in Biology
- Bachelor of Science (B.S.) in Chemistry
- Bachelor of Science (B.S.) in Nutrition
- Minors in Biology, Chemistry, Environmental Science
- Master of Science (M.S.) in Molecular Biology

CHAIR
Costantine Daher, Ph.D.

ASSOCIATE CHAIR
Ralph Abi-Habib, Ph.D.

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Ahmad Kabbani, Ph.D.

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Tarek Na’was, Ph.D.
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Nelly Mouawad, Ph.D.
Robin Taleb, Ph.D.
Brigitte Wex, Ph.D.
Nadine Zeeni, Ph.D.

INSTRUCTORS
Sami Garabedian, M.S.
Ghada Naous, M.S.
Samir Obeid, M.S.
Bachelor of Science (B.S.) in Biology

Biology is one of the most diverse and exciting fields of study in science today, exploring the structure of molecules essential for life, the development and physiology of living organisms, as well as the genetic structure of natural populations of organisms.

LAU’s B.S. in Biology program is committed to academic excellence and provides students with a solid foundation in the biological sciences in preparation for careers in biology, biotechnology and related advanced study in the biomedical and environmental sciences, while maintaining the tradition of liberal arts education.

Students enrolled in the program acquire the necessary theoretical background, analytical skills, and hands-on laboratory research experience to pursue advanced studies in various fields related to biology, medicine, and environmental and allied health sciences. The program is not only tailored for students planning to enter M.S. or Ph.D. programs, but also for pre-pharmacy and pre-medical students. The new program curriculum ensures that pre-medical students are properly prepared for the Medical College Admission Test (MCAT).

Students in the B.S. in Biology program also have the option to complete a minor in chemistry by taking one additional chemistry course.

MISSION

The Bachelor of Science in Biology program is committed to academic excellence providing a comprehensive learning experience in Biological Sciences in preparation for advanced studies and careers in biological, biomedical, environmental and health-related sciences, while maintaining the tradition of the liberal arts education.

GOALS OF CURRICULUM

Learning Objectives
Graduates of the program shall be able to:

1. Instill understanding of biological concepts;
2. Integrate knowledge across biological sub-disciplines;
3. Foster critical thinking;
4. Provide insights into scientific methodology, advances in biological research and ethical issues;
5. Prepare students for leadership roles and careers in biological sciences;

Learning Outcomes
At the completion of this program, students are able to:

1. Integrate concepts of physicochemical processes underlying metabolic pathways and homeostasis;
2. Relate structure to function at the molecular and subcellular levels;
3. Distinguish different functions of cells, tissues, and organs;
4. Integrate mechanisms of molecular genetics, heredity and evolution;
5. Relate the dynamic interactions of components at any one level of biological organization to the functional properties that emerge at higher organizational levels;
6. Demonstrate ability in retrieving scientific literature, experimental planning, data collection and interpretation;
7. Value ethical issues in biological sciences;
8. Assess advances in biological sciences and their impact on society;
9. Develop scientific literacy and skills for continued professional development as an individual and as part of a team.
## 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.

### Biology (35 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO201</td>
<td>General Biology I</td>
<td>4</td>
</tr>
<tr>
<td>BIO202</td>
<td>General Biology II</td>
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<tr>
<td>BIO311</td>
<td>Microbiology</td>
<td>3</td>
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<td>BIO312</td>
<td>Microbiology Lab</td>
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</tr>
<tr>
<td>BIO331</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BIO345</td>
<td>Cell and Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIO499</td>
<td>Senior Study</td>
<td>3</td>
</tr>
<tr>
<td>BCH301</td>
<td>Introduction to Biochemistry</td>
<td>4</td>
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### Biology Electives (10 credits)

Choose two biology elective courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>BIO341</td>
<td>Plant Physiology</td>
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<tr>
<td>BIO343</td>
<td>Anatomy and Physiology</td>
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<td>BIO344</td>
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<tr>
<td>BIO401</td>
<td>Developmental Biology</td>
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</tr>
<tr>
<td>BIO410</td>
<td>Biotechnology</td>
<td>3</td>
</tr>
<tr>
<td>BIO420</td>
<td>Virology and Immunology</td>
<td>3</td>
</tr>
<tr>
<td>BIO430</td>
<td>Population Genomics</td>
<td>3</td>
</tr>
<tr>
<td>BIO435</td>
<td>Functional Genomics</td>
<td>3</td>
</tr>
<tr>
<td>BIO488</td>
<td>Special Topics in Biology</td>
<td>3</td>
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</table>

### Chemistry (16 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>CHM201</td>
<td>Chemical Principles</td>
<td>3</td>
</tr>
<tr>
<td>CHM202</td>
<td>Analytical Chemistry</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>CHM312</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHM314</td>
<td>Organic Chemistry II Lab</td>
<td>1</td>
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### Mathematics and Computer Science (4 credits)

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<tr>
<td>STA205</td>
<td>Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>CSC201</td>
<td>Computer Literacy</td>
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### Physics (8 credits)

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<tr>
<td>PHY301</td>
<td>Classical Physics for Life Sciences</td>
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<td>PHY302</td>
<td>Classical Physics for Life Sciences Lab</td>
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<tr>
<td>PHY305</td>
<td>Modern Physics for Life Sciences</td>
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<td>PHY306</td>
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<table>
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<tr>
<td>BIO489</td>
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</tr>
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<td>BIO8—</td>
<td>Graduate Course</td>
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**SUGGESTED THREE YEAR STUDY PLAN:**

**YEAR I**

**Fall Semester (16 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>BIO201</td>
<td>General Biology I</td>
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<tr>
<td>ENG—</td>
<td>English Course (LAC)</td>
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</tr>
<tr>
<td>CHM201</td>
<td>Chemical Principles (LAC)</td>
<td>3</td>
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<tr>
<td>STA205</td>
<td>Biostatistics (LAC)</td>
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<tr>
<td>LAC</td>
<td></td>
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**Spring Semester (15 credits)**

<table>
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<tbody>
<tr>
<td>BIO202</td>
<td>General Biology II</td>
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<tr>
<td>ENG—</td>
<td>English Course (LAC)</td>
<td>3</td>
</tr>
<tr>
<td>LAC</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>CHM202</td>
<td>Analytical Chemistry</td>
<td>3</td>
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<tr>
<td>CHM204</td>
<td>Quantitative Analysis</td>
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**Summer Semester (7 credits)**

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<tr>
<td>LAC/ENG</td>
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<tr>
<td>CSC201</td>
<td>Computer Application</td>
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<td>LAC Elective</td>
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**YEAR II**

**Fall Semester (16 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BIO321</td>
<td>Genetics</td>
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<td>BIO322</td>
<td>Genetics Lab</td>
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**Spring Semester (12 credits)**

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<td>BIO345</td>
<td>Cell &amp; Molecular Biology</td>
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<tr>
<td>BIO—</td>
<td>Biology Elective</td>
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<td>BIO499</td>
<td>Senior Study-Biology</td>
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<tr>
<td>LAC</td>
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<tr>
<td>ETH201</td>
<td>Moral Reasoning</td>
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**YEAR III**

**Fall Semester (14 credits)**

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIO—</td>
<td>Biology Elective</td>
<td>3</td>
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<tr>
<td>BIO331</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>LAC</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>HLT201</td>
<td>Basic Health</td>
<td>1</td>
</tr>
<tr>
<td>PED2—</td>
<td>Physical Education</td>
<td>1</td>
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</tbody>
</table>
Bachelor of Science (B.S.) in Chemistry

Chemistry is the “central discipline” of science programs such as science education, engineering, pharmacy, biology and all of health and medical sciences.

The undergraduate chemistry program at LAU provides students with a broad-based education, including exposure to the core areas of chemistry (analytical, physical, organic and inorganic) and recently emerging technologies in both a classroom setting and in the laboratory within the context of the liberal arts curriculum.

The program encompasses the latest methodologies and applications in the study of chemistry and provides students with access to advanced instrumental techniques, particularly through the integration of information technology solutions for chemical applications.

While studying, students develop critical-thinking skills through problem-based learning as well as adequate oral and written communication skills for scientific information. Also, students will have the chance to acquire basic skills in research methodology, data analysis and interpretation through their coursework and the senior study project.

Ultimately, students will graduate as well-rounded individuals with a broad knowledge in the chemical field and hence will be well prepared for local, national and international job markets in the sectors of education, industry and health. Moreover, the program prepares students for postgraduate study in scientific fields such as chemistry, chemical engineering, biomedical sciences and medicine.

MISSION

The Bachelor of Science in Chemistry program parallels the mission of the university in commitment to academic excellence within the framework of a liberal arts tradition. The program is a marque chemical experience designed to challenge undergraduates intellectually, experimentally and interactively. The unique latitude inherent to the chemistry curriculum matures students into individuals prepared to embrace professional and ethical responsibilities.

GOALS OF CURRICULUM

Educational Objectives
Graduates of the program shall be able to:

1. Apply the scientific knowledge acquired to solve problems associated with the various disciplines of chemistry;
2. Face challenges in their future academic or professional careers with the ethical and safety standards fostered throughout the program;
3. Critically assess and articulate chemical concepts coherently through oral and written discourse;
4. Design and implement research methodologies using emerging technologies.

Learning Outcomes
At the completion of this program, students should be able to:

1. Interpret the knowledge studied in Analytical, Organic, Inorganic, Physical, and interdisciplinary topics;
2. Investigate theoretical principles through proficient application of laboratory techniques both at the bench, instrumental and modeling levels;
3. Relate the contribution of chemistry to the advancement of science and technology;
4. Show the ability to use computers in empirical and theoretical chemical applications and demonstrations;
5. Apply problem-solving skills through the scientific methods in literature survey, research design, and implementation of experimental plan, data acquisition, analysis and interpretation;
6. Evaluate critically scientific information;
7. Transmit chemical concepts to groups of diversified audience through effective written and oral presentation;
8. Apply good laboratory practice;
9. Develop an understanding of ethical and professional responsibility as chemists and as members of society;
10. Value the importance of teamwork to perform a task collectively;
11. Develop independent learning skills.

CURRICULUM REQUIREMENTS
Students must complete 92 credits of the following requirements.

Liberal Arts Curriculum Requirements (34 credits)

Chemistry requirements (42 credits)

<table>
<thead>
<tr>
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<tr>
<td>CHM202</td>
<td>Analytical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM203</td>
<td>Qualitative Analysis</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>
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</tr>
<tr>
<td>CHM313</td>
<td>Organic Chemistry I Lab</td>
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<td>CHM312</td>
<td>Organic Chemistry II</td>
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<tr>
<td>CHM314</td>
<td>Organic Chemistry II Lab</td>
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<tr>
<td>CHM330</td>
<td>Physical Chemistry I</td>
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<tr>
<td>CHM332</td>
<td>Physical Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHM334</td>
<td>Physical Chemistry Laboratory</td>
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</tr>
<tr>
<td>CHM420</td>
<td>Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM499</td>
<td>Senior Study</td>
<td>3</td>
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Elective courses (minimum 6 credits)
Choose two of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCH301</td>
<td>Introduction to Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>PHA312</td>
<td>Medicinal Chemistry (I)</td>
<td>3</td>
</tr>
<tr>
<td>NUT312</td>
<td>Food Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM340</td>
<td>Environmental Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM401</td>
<td>Instrumental Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CHM402</td>
<td>Chemistry of Materials</td>
<td>3</td>
</tr>
<tr>
<td>CHM403</td>
<td>Polymer Science</td>
<td>3</td>
</tr>
<tr>
<td>CHM404</td>
<td>Forensic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM405</td>
<td>Statistical Mechanics</td>
<td>3</td>
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Elective laboratory course (minimum 2 credits)
Choose one of the following courses:

<table>
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<th>Credits</th>
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<td>Synthesis and Identification of Organic Compounds</td>
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<td>CHM423</td>
<td>Synthesis and Identification of Inorganic Compounds</td>
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<td>CHM424</td>
<td>Synthesis and Identification of Nanomaterials</td>
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<td>CHM425</td>
<td>Computational Chemistry</td>
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Other requirements

Mathematics requirements (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH201</td>
<td>Calculus III</td>
<td>3</td>
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Choose one of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<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 Equation</td>
<td>3</td>
</tr>
<tr>
<td>MTH305</td>
<td>Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>STA205</td>
<td>Biostatistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Physics requirements (7 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY201</td>
<td>Electricity and Magnetism</td>
<td>4</td>
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Choose one of the following courses:

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<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CIE200</td>
<td>Statics</td>
<td>3</td>
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<tr>
<td>PHY321</td>
<td>Introduction to Modern Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHY301</td>
<td>Classical Physics for Life Sciences</td>
<td>3</td>
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</table>

Free electives (6 credits)
# Suggested Three-Year Study Plan

## Year I

### Fall Semester (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CHM201</td>
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<td>2</td>
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<tr>
<td>MTH201</td>
<td>Calculus III</td>
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<td>——</td>
<td>LAC English Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Arabic Elective</td>
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</tr>
<tr>
<td>CSC201</td>
<td>Computer Applications</td>
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### Spring Semester (15 credits)

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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHM202</td>
<td>Analytical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM204</td>
<td>Quantitative Analysis</td>
<td>2</td>
</tr>
<tr>
<td>PHY201</td>
<td>Electricity &amp; Magnetism</td>
<td>4</td>
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<tr>
<td>——</td>
<td>LAC English Elective</td>
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<tr>
<td>——</td>
<td>LAC Social Sciences Elective</td>
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</table>

## Year II

### Fall Semester (16 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CHM311</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHM313</td>
<td>Organic Chemistry I L</td>
<td>1</td>
</tr>
<tr>
<td>CHM330</td>
<td>Physical Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>——</td>
<td>MTH elective</td>
<td>3</td>
</tr>
<tr>
<td>PED2</td>
<td></td>
<td>1</td>
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<tr>
<td>HLT201</td>
<td>Basic Health</td>
<td>1</td>
</tr>
<tr>
<td>——</td>
<td>Philosophy (LAC) elective</td>
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</tbody>
</table>

### Spring Semester (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM312</td>
<td>Organic Chemistry II</td>
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<tr>
<td>CHM314</td>
<td>Organic Chemistry II L</td>
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<tr>
<td>CHM332</td>
<td>Physical Chemistry II</td>
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<tr>
<td>CHM334</td>
<td>Physical Chem. Lab.</td>
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<tr>
<td>PHY—</td>
<td>PHY Elective</td>
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</tr>
<tr>
<td>——</td>
<td>LAC Literature Elective</td>
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## Year III

### Spring Semester (15 credits)

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<td>CHM420</td>
<td>Inorganic Chemistry</td>
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<tr>
<td>CHM—</td>
<td>CHM Elective</td>
<td>3</td>
</tr>
<tr>
<td>CHM499</td>
<td>Senior Study</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Free elective</td>
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</tr>
<tr>
<td>——</td>
<td>LAC Art Elective</td>
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### Fall Semester (16 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CHM420</td>
<td>Inorganic Chemistry</td>
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<tr>
<td>CHM—</td>
<td>CHM Elective</td>
<td>3</td>
</tr>
<tr>
<td>CHM499</td>
<td>Senior Study</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Free elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Art Elective</td>
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### Spring Semester (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>——</td>
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</tr>
<tr>
<td>CHM—</td>
<td>CHM Lab Elective</td>
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</tr>
<tr>
<td>——</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Art Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Free Electives</td>
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</tr>
<tr>
<td>ETH201</td>
<td>Ethics and Moral Reasoning</td>
<td>1</td>
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</tbody>
</table>
Bachelor of Science (B.S.) in Nutrition

There is increasing evidence that what we eat affects our health and quality of life. Nowadays, dietary factors are implicated in several major causes of death. Nutrition is the application of knowledge about food to help people achieve and maintain health throughout the life span. Dietetics involves helping people meet their nutritional needs in health and disease through diet counseling and nutrition support.

MISSION
The mission of the Nutrition program is to prepare graduates for food and nutrition careers by providing them with the ability to integrate didactic and practical education in order to improve the health and well-being of individuals and groups while upholding tradition of the liberal arts education.

GOALS OF CURRICULUM
Program Educational Objectives
The purpose of the Bachelor of Science in Nutrition is to:

1. Prepare qualified entry-level professionals by providing high quality didactic education and supervised practice;
2. Produce competent graduates with inter-professional competencies engaged in the health profession and the improvement of human well-being;
3. Produce life-long learner graduates who are able to incorporate new evidence-based technology and knowledge into practice.

Learning Outcomes
Upon completion of the program, students will be able to:

4. Integrate evidence-based guidelines and research findings in nutrition practice and care;
5. Conduct research projects using the appropriate indicators, measures and methodology;
6. Demonstrate counseling and communication skills sufficient for entry in pre-professional practice;
7. Demonstrate professional and inter-professional teamwork skills;
8. Comply with the principles supported by the governance of Dietetics practice;
9. Develop professional attributes and a portfolio that are adapted to serve in diverse professional and community organizations;
10. Perform the nutrition care process and use standardized nutrition language;
11. Apply health education and behavior changes theories and techniques;
12. Demonstrate successful management of available resources and integrate promotion of nutritional well-being with cultural needs;
13. Implement quality management and business theories in the provision of services;
14. Successfully manage food service establishments and apply principles of food safety;
15. Perform activities related to public policy and health care systems;
16. Recognize the support knowledge underlying nutritional sciences.
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>
</tr>
</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>
</tr>
<tr>
<td>NUT499</td>
<td>Senior Study in Nutrition</td>
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</table>

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>BIO222</td>
<td>Microbiology, A Human Perspective</td>
<td>3</td>
</tr>
<tr>
<td>BIO260</td>
<td>Human Anatomy and Physiology</td>
<td>3</td>
</tr>
<tr>
<td>BIO261</td>
<td>Human Anatomy and Physiology Lab</td>
<td>1</td>
</tr>
<tr>
<td>BCH301</td>
<td>Introduction to Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>CHM200</td>
<td>Essentials of Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM204</td>
<td>Quantitative Analysis</td>
<td>2</td>
</tr>
<tr>
<td>CHM310</td>
<td>Basic Organic Chemistry</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>

SUGGESTED THREE-YEAR STUDY PLAN

YEAR I

Fall Semester (16 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIO201</td>
<td>General Biology I</td>
<td>4</td>
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<tr>
<td>ENG—</td>
<td>English Course (LAC)</td>
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<tr>
<td>CHM200</td>
<td>Essentials of Chemistry</td>
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<tr>
<td>——</td>
<td>LAC</td>
<td>3</td>
</tr>
<tr>
<td>CHM204</td>
<td>Quantitative Analysis</td>
<td>2</td>
</tr>
<tr>
<td>PED2—</td>
<td>Physical Education</td>
<td>1</td>
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Spring Semester (15 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIO260</td>
<td>Human Anatomy and Physiology</td>
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<td>BIO261</td>
<td>Human Anatomy and Physiology Lab</td>
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</tr>
<tr>
<td>CHM310</td>
<td>Basic Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM313</td>
<td>Organic Chemistry I Lab</td>
<td>1</td>
</tr>
<tr>
<td>NUT201</td>
<td>Fundamentals of Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>HLT201</td>
<td>Basic Health</td>
<td>1</td>
</tr>
<tr>
<td>ENG—</td>
<td>English Course (LAC)</td>
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Summer Semester (7 credits) (Optional)

<table>
<thead>
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<tbody>
<tr>
<td>ENG/LAC</td>
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<tr>
<td>CSC201</td>
<td>Computer Application</td>
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<tr>
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<td>LAC Elective</td>
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</table>
### YEAR II

#### Fall Semester (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>NUT301</td>
<td>Community Nutrition</td>
<td>3</td>
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<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>ETH201</td>
<td>Moral Reasoning</td>
<td>1</td>
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<tr>
<td>Arabic (LAC)</td>
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<tr>
<td>LAC</td>
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#### Spring Semester (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCH301</td>
<td>Introduction to Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>BIO222</td>
<td>Microbiology, a Human Perspective</td>
<td>3</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>STA205</td>
<td>Biostatistics</td>
<td>3</td>
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</table>

### YEAR III

#### Fall Semester (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>NUT401</td>
<td>Advanced Human Nutrition</td>
<td>3</td>
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<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>NUT378</td>
<td>Food Microbiology</td>
<td>2</td>
</tr>
<tr>
<td>NUT499</td>
<td>Senior Study in Nutrition</td>
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#### Spring Semester (14 credits)

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>NUT389</td>
<td>Nutrition in Life Cycle</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>
</tr>
<tr>
<td>LAC</td>
<td></td>
<td>3</td>
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### YEAR IV

#### Fall Semester (12 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td>Professional Nutrition Practice I</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Professional Nutrition Practice II</td>
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</tbody>
</table>

(Each course is equivalent to 25 hrs/week of hospital practice)
Knowledge of biology is highly attractive as an adjunct to many other majors and professional fields. The biology minor introduces students to core concepts in biological areas. It complements the requirements of premedical students, and provides a solid grounding for those interested in other health sciences and those who wish to pursue careers in the chemical and biochemical industries. With this comprehensive preparation, students can 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 the different fields of biology.

GOALS OF CURRICULUM
Learning 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.

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.

CURRICULUM REQUIREMENTS
Students interested in the minor in Biology must complete the following requirements.

<table>
<thead>
<tr>
<th>Biology requirements (19 credits)</th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>BIO201</td>
<td>General Biology I</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BIO202</td>
<td>General Biology II</td>
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<td></td>
</tr>
<tr>
<td>BIO321</td>
<td>Genetics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BIO345</td>
<td>Cell and Molecular Biology</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BCH301</td>
<td>Introduction to Biochemistry</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
Minor in Chemistry

The minor in chemistry teaches students about the relationship between chemistry and the world around them, allowing them to gain a broad introduction to the basics of theoretical and applied chemistry.

Pursuing a minor in chemistry widens students’ choices for further study, to areas such as professional health studies, 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. Similarly, through this minor business majors can gain valuable technical experience and be prepared for the scientific job market.

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.

GOALS OF CURRICULUM

Learning 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. Successfully show acquisition of basic concepts in chemistry;
2. Demonstrate adequate experience in laboratory and instrumental modern techniques;
3. Be able to identify and solve applied chemical problems;
4. Attain adequate preparation for any career related to chemistry; or entrance into professional studies such as health and chemical engineering; and technical advanced fields.

CURRICULUM REQUIREMENTS
Students interested in the minor in Chemistry must complete 18 credits:

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>
<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>
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</tr>
<tr>
<td>CHM313</td>
<td>Organic Chemistry I Lab</td>
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</tbody>
</table>

Elective Courses (6 credits)
Choose two of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM321</td>
<td>Organic Chemistry II</td>
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</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.

CURRICULUM REQUIREMENTS
Students must complete 18 credits:

Core Courses (9 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENV200</td>
<td>Introduction to Environmental Science</td>
<td>3</td>
</tr>
<tr>
<td>ENV402/CIE525</td>
<td>Environmental Policy and Management</td>
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</tr>
<tr>
<td>ENV422/CIE522</td>
<td>Environmental Impact Assessment</td>
<td>2</td>
</tr>
</tbody>
</table>

Elective Courses (minimum 9 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</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>
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<tr>
<td>CIE424</td>
<td>Water Distribution and Treatment</td>
<td>3</td>
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<tr>
<td>CIE520</td>
<td>Solid Waste Management</td>
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<tr>
<td>CIE585</td>
<td>Risk and Natural Hazard Management</td>
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<tr>
<td>ENV426</td>
<td>Environmental Remediation</td>
<td>3</td>
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<tr>
<td>ENV427</td>
<td>Environmental Physics</td>
<td>3</td>
</tr>
</tbody>
</table>

* May replace ENV200 for engineering students only. Biology students may substitute it with BIO331 Ecology.

CIE courses are considered as CIE technical electives for civil engineering students.
The overwhelming developments and advances in the fields of medicine, biotechnology, and the environment are mostly due to the recent achievements and breakthroughs in the field of molecular biology, basically through a better understanding of genetic systems. Molecular biology methodologies are now employed in environmental studies, and in remediation of polluted ecosystems. They have direct applications in the fields of infertility, hormonal and immune disorders, and genetic diagnosis and therapy. They are employed in the production of new therapeutic drugs, growth factors, vaccines, foods, and much needed novel bio-molecules.

**MISSION**
The graduate program in Molecular Biology aspires to endow graduates with the spirit of scientific exploration and the necessary research skills and ethical standards to attain successful careers.

**GOALS OF CURRICULUM**

**Learning Objectives**
1. Remain abreast of the most recent advances in molecular biology;
2. Prepare graduates for further graduate studies and for careers in related fields.

**Learning Outcomes**
Graduates in the M.S. in Molecular Biology will be able to:
1. Integrate advanced concepts in molecular biology and related fields;
2. Develop analytical and critical-thinking skills;
3. Evaluate recent advances in molecular biology and their impact on society;
4. Conduct research in molecular biology and related fields as individual and part of a research team;
5. Demonstrate effective verbal and oral scientific communication;
6. Assess ethical issues in biological research.

**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).

### Core Courses (9 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</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>
<td>3</td>
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### Elective Courses (15 credits)

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<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>
</tr>
<tr>
<td>BIO850</td>
<td>Genomics and Proteomics</td>
<td>3</td>
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<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>
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<tr>
<td>BIO834</td>
<td>Environmental Health and Toxicology</td>
<td>3</td>
</tr>
<tr>
<td>BIO852</td>
<td>Nutrition and Diet Therapy</td>
<td>3</td>
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<tr>
<td>BIO848</td>
<td>Fungal Genetics and Pathogenicity</td>
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<tr>
<td>Course Code</td>
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<tr>
<td>BIO845</td>
<td>Diagnostic and Applied Physiology</td>
<td>3</td>
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<tr>
<td>BIO835</td>
<td>Microbial Pathogenesis</td>
<td>3</td>
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<tr>
<td>BIO888</td>
<td>Current Topics in Microbiology</td>
<td>3</td>
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<tr>
<td>BIO881</td>
<td>Special Topics in Biology</td>
<td>3</td>
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<td></td>
<td><strong>Thesis (6 credits)</strong></td>
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<tr>
<td>BIO899</td>
<td>Thesis</td>
<td>6</td>
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**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.
Pre- or co-requisites: CHM312 Organic Chemistry II; CHM310 Basic Organic Chemistry.

**BIOLOGY (UNDERGRADUATE)**

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

**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.

**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.
Prerequisites: 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.

**BIO211 Microbiology, A Human Perspective [3-0, 3 cr.]**
This course is designed to provide a nursing and nutrition students with a foundation in basic microbiology with emphasis on infectious diseases and interaction of microorganisms with humans. The student will gain an understanding of the various characteristics of microorganisms in general and the specific characteristics of pathogenic bacteria, viruses and fungi. It will enable the students to learn how to avoid the spread of infectious microorganisms in the hospital environment. Topics will cover the different aspects of epidemiology, control of pathogens, disease transmission, nosocomial infections, host resistance, immunity, and sample collection.
Prerequisites: BIO200 Basic Biology or BIO201 General Biology I.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>BIO260</td>
<td>Human Anatomy and Physiology [3-0, 3 cr.]</td>
<td></td>
<td>This course covers the structure and function of the human body and the mechanisms involved for maintaining homeostasis within it. Body systems, including the muscular, skeletal, cardiovascular, respiratory, digestive, nervous, excretory, integumentary, endocrine and reproductive systems will be surveyed with an emphasis on the relation between structure and function. <strong>Prerequisites:</strong> BIO200 Basic Biology or BIO201 General Biology I.</td>
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<tr>
<td>BIO261</td>
<td>Human 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 humans. <strong>Pre- or Co-requisites:</strong> BIO260.</td>
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<tr>
<td>BIO311</td>
<td>Microbiology [3-0, 3 cr.]</td>
<td></td>
<td>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. <strong>Prerequisites:</strong> BIO201 General Biology I.</td>
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<tr>
<td>BIO312</td>
<td>Microbiology Lab [0-3, 1 cr.]</td>
<td></td>
<td>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. <strong>Prerequisites:</strong> BIO311 General Biology I. <strong>Pre- or co-requisite:</strong> BIO311.</td>
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<tr>
<td>BIO321</td>
<td>Genetics [3-0, 3 cr.]</td>
<td></td>
<td>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. <strong>Prerequisites:</strong> BIO201 General Biology I.</td>
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<tr>
<td>BIO322</td>
<td>Genetics Lab [0-3, 1 cr.]</td>
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<td>This course is a hands on laboratory course that familiarizes students with principles of classical Mendelian genetics and modern molecular genetics with an emphasis on recombinant DNA technology through an in depth analysis of the genetics and workings of basic model organisms such as Saccharomyces cerevisiae, Sordaria fimicola, Zea mays and Escherichia coli. <strong>Pre- or co-requisite:</strong> BIO321 Genetics.</td>
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<tr>
<td>BIO331</td>
<td>Ecology [3-3, 4 cr.]</td>
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<td>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. <strong>Prerequisites:</strong> BIO201 General Biology I.</td>
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<tr>
<td>BIO341</td>
<td>Plant Physiology [3-0, 3 cr.]</td>
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<td>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. <strong>Prerequisites:</strong> BIO201 General Biology I.</td>
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<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. <strong>Prerequisites:</strong> BIO201 General Biology I, and BIO202 General Biology II.</td>
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</tbody>
</table>
BIO344 Anatomy and Physiology Lab [0-3, 1 cr.]
This course includes experimental activities designed to enhance students’ ability to both visualize anatomical structures, and to understand most physiological topics. All laboratory sessions focus on human and other higher vertebrates.
Pre- or co-requisite: BIO343.

BIO345 Cell and Molecular Biology [3-3, 4 cr.]
This course is an integration of the approaches of cytology, biochemistry, genetics, and physiology, to provide a comprehensive understanding of the operation of cells as units of structure and function in living organisms.
Prerequisites: BIO321 Genetics.
Pre- or co-requisite: BCH301.

BIO401 Developmental Biology [3-0, 3 cr.]
This senior level course covers basic human and animal developmental processes. It deals with gametogenesis, fertilization, cleavage, gastrulation, neural and germ layer formation. It explores the details of the early human embryo development and human birth defects. The course also deals with the most recent Assisted Reproductive Technologies (ART) as well as emphasizes and updates current Stem Cell research knowledge and its application in treatment of diseases and gene therapy.
Prerequisites: BIO321 Genetics.

BIO410 Biotechnology [3-0, 3 cr.]
This course will examine all the biological principles underlying current biotechnology in the fields of human genetics, and genetic engineering. Methods of basic scientific research, the impact of technology on society, and the ethical problems in human genetics, will be explored. Topics include gene structure, function, expression, and manipulation in both the prokaryotes and eukaryotes principles of recombinant DNA technology, microbial biotechnology, animal and plant biotechnology, medical biotechnology, DNA profiling, forensics, and the regulation of biotechnology and patenting.
Prerequisites: BIO321 Genetics.

BIO420 Virology and Immunology [3-0, 3 cr.]
This course provides an introduction to the immune response, the cells and tissues of the lymphoid system, lymphocyte activation and specificity, humoral and cell-mediated immunity, the concept of immunity to diseases, and immunodeficiency, and AIDS autoimmune diseases and transplantation. It examines the interactions between pathogens and host defense mechanisms (innate and specific immunity), as well as the problems in pathogenesis. The student will be also exposed to the principles of virology, with topics covering the fundamental properties of viruses, including their structure, replication, molecular biology, pathogenesis, epidemiology, and the medical importance of major virus groups and their interaction with host cells.
Prerequisites: BIO201 General Biology I.

BIO430 Special Topics in Biology [3-0, 3 cr.]
This course covers specialized contemporary topics of current interest to senior undergraduates in the Biology program.
Prerequisites: senior standing.

BIO499 Senior Study [3-3, 3 cr.]
This course is designed to teach research methods, including a survey of literature on a problem in biology, a laboratory investigation of some phase of it, and its presentation in a paper.
Prerequisites: senior standing.

BIOLOGY (GRADUATE)

BIO805 Protein Research Methods [1-6, 3 cr.]
This course is a laboratory course in molecular biology. The course aims at familiarizing students with the basic techniques currently used in this field, and supplies them with the necessary tools to carry on independent research that is needed for their Master’s Thesis. Techniques include protein isolation and purification, protein handling and quantification, gel electrophoresis, western immunoblot, ELISA, column chromatography (gel filtration, ion exchange chromatography, and affinity chromatography), HPLC, GCMS, NMR, and lipoprotein
separation, using density gradient ultracentrifugation, and other advanced laboratory techniques in protein research.

BIO806 Research Methods II [1-6, 3 cr.]
This course is a laboratory course in molecular biology which aims at familiarizing students with the basic techniques currently used in this field, and supplies them with the necessary tools to carry on independent research needed for their Master’s Thesis. Techniques include DNA and RNA extraction, PCR, RT-PCR, southern blotting, DIG probe labeling, micro-satellite typing, DNA sequencing, DNA sub-cloning coupled with bacterial transformation, transcriptional expression techniques using galactosidase reporter gene assays, and identification of bacterial species using the Biology 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, radioimmunoassay, 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, carbohy-
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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: CHM201 Chemical Principles or concurrently.

CHM310 Basic Organic Chemistry I [3-0, 3 cr.]
This course is for pre-health professionals. Materials covered include electronic structure, and bonding; acid/base in organic chemistry; organic compounds and their nomenclature; physical properties, structures, reactions and reactivity of alkanes, alkenes, alkynes, alkyl halides, alcohols, amines, ethers, and epoxides; aromatic systems and their reactions; substitutions (nucleophilic, electrophilic) and eliminations; central role of carbonyl compounds and their reactions, structure determination and the chemistry of biomolecules.
Prerequisites: CHM200 Essentials of Chemistry or CHM201 Chemical Principles.

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 organic structure determination by spectroscopic methods, properties, reactions, and synthesis including alcohols, ethers, aldehydes, ketones, carboxylic acids and derivatives, amines, phenols, and carbohydrates. Emphasis will be placed on reaction mechanism and stereochemistry, as well as the design of multi-step synthesis.
Prerequisites: CHM311 Organic Chemistry I.

CHM313 Organic Chemistry I 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. Nitration 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, Hückel 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: CHM201 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.  
Prerequisites: 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 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.  
Prerequisites: 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.  
Pre- 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, fibe, bodily fluid, glass, paint, soil, fingerprints, 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.  
Prerequisites: 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, element-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.
Prerequisites: 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.

ENV402/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.
Prerequisites: 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, biogeo-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. 
Prerequisites: 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. 
Prerequisites: 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. 
Prerequisites: CHM310 Basic Organic Chemistry or 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. 
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. 
Prerequisites: 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. 
Prerequisites: 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.
Prerequisites: Fundamentals of Human Nutrition. 
Pre- or co-requisite: 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.
Prerequisites: NUT312 Food Chemistry

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.
Prerequisites: 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
Prerequisites: NUT401 Advanced 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: NUT201 Fundamentals of human nutrition, BIO343 Anatomy and Physiology.
Pre- or co-requisite: 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.
Prerequisites: NUT356 Nutrition Status Assessment.

NUT 467 Hospital Administration [3-0, 3 cr.]
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.

NUT499 Senior Study in Nutrition [1-6, 3 cr.]
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.
Prerequisites: 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.
**PED 220 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.

**PED 231 Modern Dance [0-2, 1 cr.]**
This course emphasizes on body integration, locomotors skills, dynamic variety and musicality.

**PED 232 Folk Dance [0-2, 1 cr.]**
This course involves the development of coordination and grace, rhythmic awareness, and emphasis on international understanding.

**PED 251 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.

**PED 261 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.

**PED 271 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."

**PED 291 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**

**PHY 101 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.

**PHY 111 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.
*Prerequisites: MTH 102 Calculus II, or concurrently.*

**PHY 201 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.
*Prerequisites: MTH 201 Calculus III.*

**PHY 211 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.
*Prerequisites: Sophomore standing.*

**PHY 301 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.

**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.

**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.*
DEGREES OFFERED

- Bachelor of Arts (B.A.) in Political Science
- Bachelor of Arts (B.A.) in Political Science–International Affairs
- Bachelor of Arts (B.A.) in Psychology
- Bachelor of Arts (B.A.) in Social Work
- Master of Arts (M.A.) in International Affairs

Minors in: Legal Studies, Political Science–International Affairs, Psychology, Sociology, Conflict Analysis and Resolution

CHAIR
Paul Tabar, Ph.D.

ASSOCIATE CHAIR
Marwan Rowayheb, Ph.D.

PROFESSOR
Sami Baroudi, Ph.D.

ASSOCIATE PROFESSORS
Huda Ayyash-Abdo, Ed.D.
Hassan Hammoud, Ph.D.
Ray Jureidini, Ph.D.
Walid Moubarak, Ph.D.
Imad Salamey, Ph.D.
Bassel Salloukh, Ph.D.
Ketty Sarourphim, Ph.D.

ASSISTANT PROFESSORS
Diala Ammar, Ph.D.
Tamirace Fakhoury, Ph.D.
Makram Ouaiass, Ph.D.
Maria-José Sánchez-Ruiz, Ph.D.
Jennifer Skulte-Ouaiass, Ph.D.
Samar Zebian, Ph.D.

LECTURER
Elie Samia, M.A.

SENIOR INSTRUCTOR
Louliwa Kaloyeros, M.S.
**Bachelor of Arts (B.A.) in Political Science**

**MISSION**
Basing itself on the university’s mission, the Bachelor of Arts in Political Science program 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 B.A. program prepares students for graduate studies, and/or a variety of entry level careers.

**GOALS OF CURRICULUM**

**Learning 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;
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 (28 credits Liberal Arts Curriculum, 42 credits for the major, 9 credits for the other requirements, and 13 credits of free electives).

**Major Requirements (42 credits)**

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>POL201</td>
<td>Introduction to Political Science</td>
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</tr>
<tr>
<td>POL210</td>
<td>Introduction to Political Thought</td>
<td>3</td>
</tr>
<tr>
<td>POL—</td>
<td>Any POL course not otherwise required</td>
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</tr>
<tr>
<td>POL222</td>
<td>Comparative Political Systems</td>
<td>3</td>
</tr>
<tr>
<td>POL240</td>
<td>Concepts of World Politics</td>
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<td>3</td>
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<td>POL321</td>
<td>American Government and Politics</td>
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<td>Foreign Policy of Major Powers</td>
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<tr>
<td>POL323</td>
<td>Middle East Governments and Politics</td>
<td>3</td>
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<tr>
<td>POL331</td>
<td>International Organization</td>
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<td>Public International Law</td>
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<td>POL422</td>
<td>The Middle East in International Affairs</td>
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<td>POL499</td>
<td>Senior Study</td>
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**Other Requirements (9 credits)**

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<tr>
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<tr>
<td>POL203</td>
<td>Government and Politics of Lebanon</td>
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<tr>
<td>ECO202</td>
<td>Macroeconomics</td>
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</tr>
<tr>
<td>HST305</td>
<td>Contemporary Europe</td>
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**Free Electives (13 credits)**

**SUGGESTED THREE-YEAR STUDY PLAN**

**YEAR I**

**Fall Semester (12 credits)**

<table>
<thead>
<tr>
<th>COURSE</th>
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<tbody>
<tr>
<td>POL201</td>
<td>Introduction to Political Science</td>
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<tr>
<td>ECO201</td>
<td>Micro Economics</td>
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<td>ARA2-3—</td>
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**Spring Semester (15 credits)**

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<tr>
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<tr>
<td>ENG202</td>
<td>Sophomore Rhetoric</td>
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**Summer Semester (4 credits)**

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<td>ENG203</td>
<td>Fundamentals of Oral Communication</td>
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<td>ETH201</td>
<td>Moral Reasoning</td>
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**YEAR II**

**Fall Semester (15 credits)**

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<tbody>
<tr>
<td>POL203</td>
<td>Government and Politics of Lebanon</td>
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<td>POL222</td>
<td>Comparative Political Systems</td>
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<td>———</td>
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<tr>
<td>POL331</td>
<td>International Organization</td>
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**Spring Semester (15 credits)**

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<tbody>
<tr>
<td>POL322</td>
<td>American Government and Politics</td>
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<td>POL312</td>
<td>Politics of Developing Areas</td>
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<td>POL322</td>
<td>Foreign Policy of Major Power</td>
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<td>———</td>
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**YEAR III**

**Fall Semester (17 credits)**

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<td>POL323</td>
<td>Middle East Government</td>
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<td>POL332</td>
<td>Public International Law</td>
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<td>POL314</td>
<td>Research Methodology</td>
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<td>HLT201</td>
<td>Basic Health</td>
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<td>CSC201</td>
<td>Computer application</td>
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**Spring Semester (14 credits)**

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<tbody>
<tr>
<td>POL499</td>
<td>Senior Study</td>
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<td>POL422</td>
<td>The Middle East in World Affairs</td>
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<tr>
<td>PED—</td>
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</tbody>
</table>
Bachelor of Arts (B.A.) in Political Science–International Affairs

MISSION
The Bachelor of Arts program in Political Science–International Affairs trains students in comparative politics, international relations, and political theory, as well as the methodology of political analysis. It also seeks to develop future leaders who recognize and value diversity in a variety of professional settings and prepares students for graduate study.

GOALS OF CURRICULUM

Learning Objectives
The purpose of the Bachelor of Arts in Political Science–International Affairs is to:
1. Attain knowledge of facts, theories, and concepts in political science and international affairs at the local, national and international levels;
2. Enhance graduates’ awareness of the diversity of perspectives and life experiences that structure the global political, social, and economic environment;
3. Integrate the cultural, social, legal, and ethical issues inherent in the discipline of political science and international affairs into their undergraduate education;
4. Acquire the skills of working effectively in teams and strong oral and written communication.

Learning Outcomes
Upon successful completion of the program, students should be able to:
1. Describe the basic facts, concepts, and theories pertaining to political science and international affairs;
2. Comprehend the interrelationship among the historical, political, economic, cultural, and geographic dimensions in political science and international affairs;
3. Apply academic theories and concepts of international relations and relate them to contemporary global issues;
4. Construct relevant research questions and statements pertaining to political science and/or international affairs orally and in writing;
5. Apply research skills to the design of research, description, analysis, interpretation and explanation of aspects of political science and international affairs in written and oral forms as well as through using information technology;
6. Cooperatively solve problems related to political science and international affairs;
7. Demonstrate ability to analyze ethical complexity and act ethically in professional and academic environments.
CURRICULUM REQUIREMENTS
Students must complete 92 credits (excluding freshman requirements) for the major, of which 25 credits are from the Liberal Arts Curriculum (LAC), 39 in Political Science-International Affairs, 18 credits in a variety of related disciplines, and 10 credits in the free electives.

Core Requirements (39 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ECO201</td>
<td>Microeconomics</td>
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<td>ECO202</td>
<td>Macroeconomics</td>
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<td>POL201</td>
<td>Intro to Political Science</td>
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<td>POL203</td>
<td>Government &amp; Politics of Lebanon</td>
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</table>

Issue Tracks Focus (9 credits)
Choose either 9 credits in one (1) of the following tracks (to complement the major requirements) OR take a total of 9 credits from this section overall:

- **Globalization**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL335</td>
<td>Politics of Multiculturalism</td>
<td>3</td>
</tr>
<tr>
<td>POL346</td>
<td>International Political Economy</td>
<td>3</td>
</tr>
<tr>
<td>POL357</td>
<td>Globalization &amp; Political Change</td>
<td>3</td>
</tr>
<tr>
<td>ECO311</td>
<td>Economic Development</td>
<td>3</td>
</tr>
<tr>
<td>POL437</td>
<td>Topics in Political Science- International Affairs</td>
<td>3</td>
</tr>
<tr>
<td>*POL448</td>
<td>Internship</td>
<td>3</td>
</tr>
</tbody>
</table>

- **Diplomacy & Conflict Resolution**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL252</td>
<td>Fundamentals of Conflict Resolution</td>
<td>3</td>
</tr>
<tr>
<td>POL415</td>
<td>Negotiation &amp; Bargaining</td>
<td>3</td>
</tr>
<tr>
<td>POL432</td>
<td>Diplomacy &amp; Consular Service</td>
<td>3</td>
</tr>
<tr>
<td>POL437</td>
<td>Topics in Political Science-International Affairs</td>
<td>3</td>
</tr>
<tr>
<td>*POL448</td>
<td>Internship</td>
<td>3</td>
</tr>
</tbody>
</table>

* Can be taken only once for credit

Area Studies Focus (9 credits)
Choose any nine (9) credits of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC321</td>
<td>Sociology of the Arab World</td>
<td>3</td>
</tr>
<tr>
<td>HST240</td>
<td>History of the Arab Peoples</td>
<td>3</td>
</tr>
<tr>
<td>HST241</td>
<td>History of Islam in the M.E.</td>
<td>3</td>
</tr>
<tr>
<td>WOS313</td>
<td>Women in the Arab World</td>
<td>3</td>
</tr>
<tr>
<td>POL323</td>
<td>Middle East Government &amp; Politics</td>
<td>3</td>
</tr>
<tr>
<td>POL422</td>
<td>The Middle East in World Affairs</td>
<td>3</td>
</tr>
<tr>
<td>HST304</td>
<td>Modern Europe</td>
<td>3</td>
</tr>
<tr>
<td>HST305</td>
<td>Contemporary Europe</td>
<td>3</td>
</tr>
<tr>
<td>POL426</td>
<td>Politics of the European Union</td>
<td>3</td>
</tr>
<tr>
<td>HST334</td>
<td>History of North America</td>
<td>3</td>
</tr>
<tr>
<td>POL321</td>
<td>American Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>POL368</td>
<td>Political Parties and Elections in America</td>
<td>3</td>
</tr>
<tr>
<td>POL437</td>
<td>Topics in Political Science-International Affairs</td>
<td>3</td>
</tr>
</tbody>
</table>

Liberal Arts Curriculum Requirements* (25 credits)

Free Electives (10 credits)

* POL201, ECO201 and ECO202 count as LAC Social Sciences as well as core courses for the major.
SUGGESTED THREE-YEAR STUDY PLAN

YEAR I

Fall Semester (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL201</td>
<td>Introduction to Political Science</td>
<td>3</td>
</tr>
<tr>
<td>ARA2-</td>
<td>Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECO201</td>
<td>Remedial English course (if any)</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Free elective</td>
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</tbody>
</table>

*(Also count as 1 LAC course-social sciences)*

Spring Semester (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL222</td>
<td>Comparative Political System</td>
<td>3</td>
</tr>
<tr>
<td>POL203</td>
<td>Government &amp; Politics of Lebanon</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Issue Tracks Course</td>
<td>3</td>
</tr>
<tr>
<td>ENG202</td>
<td>Sophomore Rhetoric</td>
<td>3</td>
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<tr>
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<td>LAC Elective</td>
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</table>

Summer Semester (6 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENG203</td>
<td>Fundamentals of Oral Communication</td>
<td>3</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>CSC201</td>
<td>Computer Applications</td>
<td>1</td>
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</tbody>
</table>

**Students who do not need to take Remedial English in their first year could avoid taking summer courses by taking ENG203 in spring after having taken ENG202 in year one fall semester. ETH201 and PED- could be fit in elsewhere during the fall or spring semesters.

YEAR II

Fall Semester (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>POL240</td>
<td>Concepts of World Politics</td>
<td>3</td>
</tr>
<tr>
<td>POL210</td>
<td>Introduction of Political Thought</td>
<td>3</td>
</tr>
<tr>
<td>POL314</td>
<td>Research Methodology</td>
<td>3</td>
</tr>
<tr>
<td>POL331</td>
<td>International Organization</td>
<td>3</td>
</tr>
<tr>
<td>ECO202</td>
<td>Macroeconomics</td>
<td>3</td>
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</table>

Spring Semester (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>POL312</td>
<td>Politics of Developing Areas</td>
<td>3</td>
</tr>
<tr>
<td>POL322</td>
<td>Foreign Policy of Major Powers</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Issue Tracks Course</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Area Studies Course</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Elective</td>
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YEAR III

Fall Semester (16 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>POL322</td>
<td>Public International Law</td>
<td>3</td>
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<tr>
<td>——</td>
<td>Area Studies Course</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Area Studies Course</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Free Elective</td>
<td>3</td>
</tr>
<tr>
<td>HLT201</td>
<td>Basic Health</td>
<td>1</td>
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</table>

Spring Semester (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL499</td>
<td>Senior Study</td>
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<tr>
<td>——</td>
<td>Free Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Issue Track</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Free Elective</td>
<td>3</td>
</tr>
</tbody>
</table>
**MISSION**

The B.A. 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.

**GOALS OF CURRICULUM**

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.

**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.

**CURRICULUM REQUIREMENTS**

Students must complete 92 credits (excluding freshman requirements) for the major of which 34 credits are from the Liberal Arts Curriculum, (including 3 credits of applied statistics), 45 in psychology and 10 in free electives.

**Liberal Arts Curriculum* (34 credits)**

**STA202 Applied Statistics (3 credits)**

**Major Requirements (30 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY201</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY234</td>
<td>Development across the Life Span</td>
<td>3</td>
</tr>
<tr>
<td>PSY295</td>
<td>Theories of Learning</td>
<td>3</td>
</tr>
<tr>
<td>PSY245</td>
<td>Research Methods I</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>PSY345</td>
<td>Research Methods II (prerequisite Research Methods I)</td>
<td>3</td>
</tr>
<tr>
<td>PSY425</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY322</td>
<td>Mind &amp; Behavior</td>
<td>3</td>
</tr>
<tr>
<td>PSY355</td>
<td>Biological Basis of Behavior</td>
<td>3</td>
</tr>
<tr>
<td>PSY466</td>
<td>Counseling Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY499</td>
<td>Psychology Senior Study</td>
<td>3</td>
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</table>

* Potential courses: psychology of gender, positive psychology, cultural psychology, motor development, psychology in the community, human sexuality, eating disorders, etc.

**Psychology Electives (15 credits)**
Choose 5 courses or 15 credits:

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PSY202</td>
<td>Child Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY203</td>
<td>Psychology of Youth</td>
<td>3</td>
</tr>
<tr>
<td>PSY204</td>
<td>Social Psychology (prerequisite for PSY499)</td>
<td>3</td>
</tr>
<tr>
<td>PSY256</td>
<td>Sensation and Perception</td>
<td>3</td>
</tr>
<tr>
<td>PSY267</td>
<td>Cultural Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY335</td>
<td>Industrial Organizational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY311</td>
<td>Exceptional Child</td>
<td>3</td>
</tr>
<tr>
<td>PSY320</td>
<td>Theories of Personality</td>
<td>3</td>
</tr>
<tr>
<td>PSY498</td>
<td>Topics in Psychology</td>
<td>3</td>
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</table>

**Free Electives (10 credits)**

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**SUGGESTED THREE-YEAR STUDY PLAN**

**YEAR I**

**Fall Semester (16 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY201</td>
<td>Introduction to Psychology (core)</td>
<td>3</td>
</tr>
<tr>
<td>PSY234</td>
<td>Development across the lifespan (core) or Child Psychology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>LAC Elective</td>
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<tr>
<td></td>
<td>LAC Required Course</td>
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<td>Free Elective</td>
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**Spring (15 credits)**

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY295</td>
<td>Theories of learning core (previously PSY422) prerequisite PSYS 201</td>
<td>3</td>
</tr>
<tr>
<td>PSY204</td>
<td>Social Psychology (prerequisite PSY499)</td>
<td>3</td>
</tr>
<tr>
<td>PSY257</td>
<td>Sensation and Perception</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>LAC Required Course</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>LAC Elective</td>
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</tr>
<tr>
<td></td>
<td>Free Electives</td>
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**Year II (30 credits)**

**Fall Semester (15 credits)**

<table>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PSY245</td>
<td>Research Methods I (core)</td>
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</tr>
<tr>
<td>STA302</td>
<td>Statistics of the Social Sciences</td>
<td>3</td>
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<tr>
<td></td>
<td>LAC Elective</td>
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</tr>
<tr>
<td></td>
<td>LAC Required Course</td>
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Choose one of the following:

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY202</td>
<td>Child Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY203</td>
<td>Psychology of Youth</td>
<td>3</td>
</tr>
<tr>
<td>PSY256</td>
<td>Sensation and Perception</td>
<td>3</td>
</tr>
<tr>
<td>PSY267</td>
<td>Cultural Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Name</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>PSY335</td>
<td>Industrial Organizational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY311</td>
<td>Exceptional Child</td>
<td>3</td>
</tr>
<tr>
<td>PSY320</td>
<td>Theories of Personality</td>
<td>3</td>
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</table>

**Spring Semester (16 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY355</td>
<td>Biological Basis of Behavior (core)</td>
<td>3</td>
</tr>
<tr>
<td>PSY345</td>
<td>Research Methods II</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>Free Elective</td>
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Choose one of the following:

<table>
<thead>
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<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PSY202</td>
<td>Child Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY203</td>
<td>Psychology of Youth</td>
<td>3</td>
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<tr>
<td>PSY256</td>
<td>Sensation and Perception</td>
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<tr>
<td>PSY267</td>
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<td>3</td>
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<tr>
<td>PSY335</td>
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<tr>
<td>PSY311</td>
<td>Exceptional Child</td>
<td>3</td>
</tr>
<tr>
<td>PSY320</td>
<td>Theories of Personality</td>
<td>3</td>
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</table>

**YEAR III**

**Fall Semester (15 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY425</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY322</td>
<td>Mind and Behavior (core)</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>LAC Required Course</td>
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</tr>
<tr>
<td>———</td>
<td>LAC Elective</td>
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</table>

Choose one of the following psychology electives:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY202</td>
<td>Child Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY203</td>
<td>Psychology of Youth</td>
<td>3</td>
</tr>
<tr>
<td>PSY204</td>
<td>Social Psychology (prerequisite for PSY499)</td>
<td>3</td>
</tr>
<tr>
<td>PSY256</td>
<td>Sensation and Perception</td>
<td>3</td>
</tr>
<tr>
<td>PSY267</td>
<td>Cultural Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY335</td>
<td>Industrial Organizational Psychology</td>
<td>3</td>
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</table>

**Spring Semester (15 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY499</td>
<td>Senior Study Prerequisite senior standing and PSY204 Social Psychology (core)</td>
<td>3</td>
</tr>
<tr>
<td>PSY466</td>
<td>Counseling Psychology prerequisite PSY425</td>
<td>3</td>
</tr>
<tr>
<td>———</td>
<td>LAC Elective</td>
<td>6</td>
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Choose one of the following psychology electives:

<table>
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<tr>
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<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
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<td>3</td>
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<tr>
<td>PSY204</td>
<td>Social Psychology (prerequisite for PSY499)</td>
<td>3</td>
</tr>
<tr>
<td>PSY256</td>
<td>Sensation and Perception</td>
<td>3</td>
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<tr>
<td>PSY267</td>
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</tr>
<tr>
<td>PSY335</td>
<td>Industrial Organizational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY311</td>
<td>Exceptional Child</td>
<td>3</td>
</tr>
</tbody>
</table>
Bachelor of Arts (B.A.) in Social Work

The program aims at acquainting students with the principles in the social sciences and humanities, as well as the basic skills in interpersonal and intergroup 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. Students majoring in Social Work must complete 92 credits. The program is offered at the Beirut campus.

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.

GOALS OF CURRICULUM
Learning 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. Instill 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.

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.

CURRICULUM REQUIREMENTS
MAJOR CORE REQUIREMENTS (21 CREDITS)

<table>
<thead>
<tr>
<th>Course</th>
<th>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>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------------</td>
<td>---------</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)**

**SUGGESTED THREE-YEAR STUDY PLAN**

**YEAR I**

**Fall Semester (14 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>SOC301</td>
<td>Introduction to Social Work</td>
<td>3</td>
</tr>
<tr>
<td>ARA2/3—</td>
<td></td>
<td>3</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>
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<tr>
<td>HLT201</td>
<td>Basic Health</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>PSY201</td>
<td>Intro to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC313</td>
<td>Family &amp; Child Welfare</td>
<td>3</td>
</tr>
<tr>
<td>ENG102</td>
<td></td>
<td>3</td>
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<tr>
<td>ETH201</td>
<td>Moral Reasoning</td>
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</tr>
<tr>
<td>PED—</td>
<td>Physical Education</td>
<td>1</td>
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<tr>
<td>——</td>
<td>Free Elective</td>
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<tr>
<td>——</td>
<td>Free Elective</td>
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</table>

**YEAR II**

**Fall Semester (15 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC402</td>
<td>Social Work Intervention I</td>
<td>3</td>
</tr>
<tr>
<td>PSY204</td>
<td>Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC311</td>
<td>Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>PSY311</td>
<td>Exceptional Child</td>
<td>3</td>
</tr>
<tr>
<td>ENG202</td>
<td>Sophomore Rhetoric</td>
<td>3</td>
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**Spring Semester (18 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC403</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>ENG203</td>
<td>Fundamentals of Oral Science</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Free Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Free Elective</td>
<td>3</td>
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</tbody>
</table>

**YEAR III**

**Fall Semester (18 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC321</td>
<td>Sociology of the Arab World</td>
<td>3</td>
</tr>
<tr>
<td>SOC404</td>
<td>Practicum I</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Free Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Free Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

**Spring Semester (15 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC499</td>
<td>Senior Study-Social Work</td>
<td>3</td>
</tr>
<tr>
<td>SOC405</td>
<td>Practicum II</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>LAC Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Free Elective</td>
<td>3</td>
</tr>
<tr>
<td>——</td>
<td>Free Elective</td>
<td>3</td>
</tr>
</tbody>
</table>
Minor in Conflict Analysis and Resolution

MISSION
The minor in Conflict Analysis and Resolution provides individuals with an understanding of conflict, its sources and dynamics. It also provides individuals an understanding of the approaches and tools available to transform and resolve different types of conflicts.

GOALS OF CURRICULUM

Educational Objectives
1. Provide a clear understanding of the nature and dynamics of conflicts and the dominant theories in this field
2. Analyze different approaches and tools used to understand and address interpersonal, workplace, and international conflicts

Learning Outcomes
1. Define conflict and its main sources and dynamics in different contexts;
2. Show awareness regarding the role of leadership, culture, and world views in conflict;
3. Apply different conflict analysis techniques to map and analyze conflicts;
4. Analyze major conflict resolution techniques and tools used in different contexts.

CURRICULUM REQUIREMENTS

For a minor in conflict analysis and resolution, students must choose 18 credits of the following courses:

Minor Core Requirements (9 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL252</td>
<td>Fundamentals of Conflict Resolution</td>
<td>3</td>
</tr>
<tr>
<td>PJE201</td>
<td>Cross-Cultural Communication and Conflict</td>
<td>3</td>
</tr>
<tr>
<td>PJE315/POL315</td>
<td>Community Conflict and Conflict Resolution</td>
<td>3</td>
</tr>
</tbody>
</table>

Minor Elective Requirements (9 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY204</td>
<td>Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td>POL231</td>
<td>Introduction to Human Rights</td>
<td>3</td>
</tr>
<tr>
<td>POL241</td>
<td>Model UN: Dipl. Skills &amp; Simulation</td>
<td>3</td>
</tr>
<tr>
<td>POL213</td>
<td>Mediation skills</td>
<td>3</td>
</tr>
<tr>
<td>MGT317/POL317</td>
<td>Conflict Resolution Tools for the Business World</td>
<td>3</td>
</tr>
<tr>
<td>POL316</td>
<td>Introduction to International Conflict and Conflict Resolution</td>
<td>3</td>
</tr>
<tr>
<td>REL318</td>
<td>Religious Thought and Conflict Resolution</td>
<td>3</td>
</tr>
<tr>
<td>POL322</td>
<td>Public International Law</td>
<td>3</td>
</tr>
<tr>
<td>SOC311</td>
<td>Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>WOS312</td>
<td>Women and Economic Power</td>
<td>3</td>
</tr>
<tr>
<td>POL415</td>
<td>Negotiation and Bargaining</td>
<td>3</td>
</tr>
<tr>
<td>POL432</td>
<td>Diplomacy and Consular Services</td>
<td>3</td>
</tr>
</tbody>
</table>
Minor in Legal Studies

GOALS OF CURRICULUM

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.

CURRICULUM REQUIREMENTS

For a minor in legal studies, students must take 18 credits as follows.

Core Requirements (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEG 201</td>
<td>Introduction to Legal Studies</td>
<td>3</td>
</tr>
<tr>
<td>LEG 202</td>
<td>Law and Society–World Legal Traditions</td>
<td>3</td>
</tr>
<tr>
<td>LEG 203</td>
<td>Laws in the Middle East</td>
<td>3</td>
</tr>
<tr>
<td>POL201</td>
<td>Introduction Political Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Minor Elective Requirements

Choose 2 of the following courses (6 credits):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 202</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>POL222</td>
<td>Comparative Political Systems</td>
<td>3</td>
</tr>
<tr>
<td>POL231</td>
<td>Introduction to Human Rights</td>
<td>3</td>
</tr>
<tr>
<td>POL321</td>
<td>American Government 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>
</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.

GOALS OF CURRICULUM

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 M.A. program in International Affairs at LAU after completing the B.A.;
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.

CURRICULUM REQUIREMENTS
For a minor in political science–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>POL201</td>
</tr>
<tr>
<td>POL240</td>
</tr>
<tr>
<td>POL422</td>
</tr>
</tbody>
</table>
Minor in Psychology

MISSION
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.

GOALS OF CURRICULUM

Educational Objectives
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
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:
   a. Developmental; as related to each major period of life, infancy, childhood, adolescence, adulthood, and old age;
   b. 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;
   c. Social and Organizational; as applied to behavior of individuals in groups and in organizations.
   d. Applied Psychology; as associated with symptomatology, possible etiology, and proposed treatment for the major categories of psychological disorders;
3. Students will become aware of how to transfer and apply knowledge and research findings to the Lebanese context.

CURRICULUM REQUIREMENTS

Minor Core Requirements (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY201</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Choose one of the following courses:</td>
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<td></td>
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<tr>
<td>PSY202</td>
<td>Child Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY234</td>
<td>Development across the Life Span</td>
<td>3</td>
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</table>

Minor Elective Requirements (9 credits)

Choose one of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY257</td>
<td>Sensation and Perception</td>
<td>3</td>
</tr>
<tr>
<td>PSY322</td>
<td>Mind and behavior</td>
<td>3</td>
</tr>
<tr>
<td>PSY295</td>
<td>Theories of Learning</td>
<td>3</td>
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<tr>
<td>Choose one of the following courses:</td>
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<tr>
<td>PSY335</td>
<td>Industrial Organization Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY204</td>
<td>Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Choose one of the following courses:</td>
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<td></td>
</tr>
<tr>
<td>PSY320</td>
<td>Theories of Personality</td>
<td>3</td>
</tr>
<tr>
<td>PSY425</td>
<td>Abnormal Psychology</td>
<td>3</td>
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</tbody>
</table>
MINISTRY
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.

GOALS OF CURRICULUM

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:

5. Acquire the ability to apply sociological concepts, to better understand the social issues, and to overcome social problems;
6. Acquire the ability to find jobs in fields related to Sociology (social work, community development, social research, journalism, etc.);
7. Develop the ability to communicate effectively;
8. Lay the groundwork for the pursuit of graduate studies in sociology.

CURRICULUM 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):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC215</td>
<td>Introduction to Gender Studies</td>
<td>3</td>
</tr>
<tr>
<td>SOC212/COM210</td>
<td>Communication Media &amp; Society</td>
<td>3</td>
</tr>
<tr>
<td>SOC303</td>
<td>Urban Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC304</td>
<td>Sociology of Religion</td>
<td>3</td>
</tr>
<tr>
<td>SOC321</td>
<td>Sociology of the Arab World</td>
<td>3</td>
</tr>
</tbody>
</table>
Master of Arts (M.A.) in International Affairs

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.

GOALS OF CURRICULUM

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.

Learning Outcomes
Graduates in the M.A. in International Affairs program will:
4. Acquire the analytical, methodological, and writing skills necessary to produce quality research papers, and one capstone Research Project (i.e. Thesis.);
5. Employ advanced research and critical thinking skills;
6. 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;
7. Apply the skills of diplomacy, negotiation and bargaining, as well as the techniques of conflict resolution.

CURRICULUM REQUIREMENTS
Students need 30 credits for the major (9 for the core and 21 for other requirements).

Core Requirements (6 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INA811</td>
<td>Theories of International Affairs</td>
<td>3</td>
</tr>
<tr>
<td>INA899</td>
<td>Thesis</td>
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</table>

Other Requirements
Choose 7 courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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>
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COURSE DESCRIPTIONS

LEGAL STUDIES

LEG201 Introduction to Legal Studies [3-0, 3 cr.]
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.

LEG202 Law and Society-World Legal Traditions [3-0, 3 cr.]
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.

Prerequisites: LEG201 Introduction to Legal Studies

LEG203 Laws in the Middle East [3-0, 3 cr.]
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.

Prerequisites: LEG201 Introduction to Legal Studies

PEACE AND JUSTICE EDUCATION

PJE201 Cross-Cultural Communication and Conflict [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.

PJE315 Community Conflict and Conflict Resolution [3-0, 3 cr.]
This course focuses on the social dimension of conflict by looking at group dynamics and social interactions. The course reviews concepts such as group formation, inter- and intra-group communication, group dynamics, cultural, religious and other influences as well as ways communal conflict manifest themselves and how conflicts tend to be resolved in communities. Students would review group conflicts and analyze community conflicts that they are familiar with. This course will be of significant relevance to Political Science, International Relations and Social Studies students. The course will review the role of nongovernmental and governmental organizations in contributing to community conflict resolution.

POLITICAL SCIENCE

POL101 Introduction to Politics [3-0, 3 cr.]
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.
POL201 Introduction to Political Science [3-0, 3 cr.]
This course introduces students to the basic concepts of and approaches to the study of political science. The course focuses on social science methodology, political ideologies, the state and state-society relations, political parties, electoral systems, democracy, culture, institutions and international relations (IR). A significant emphasis is placed on the ability to use these concepts toward the analysis of current political issues, disputes and trends.

Prerequisites: POL201.

POL203 Government & Politics of Lebanon [3-0, 3 cr.]
This course offers a comprehensive survey of the political system in Lebanon from independence to the present. It includes a detailed coverage of Lebanese politics and institutions. 
Prerequisites: POL201.

POL210 Introduction to Political Thought [3-0, 3 cr.]
The course surveys key political ideas primarily from the Renaissance through the Enlightenment up to the beginning of the 20th century. Analysis and discussion of original texts and political ideas related to the general philosophy of each author’s historical and political background.
Prerequisites: POL201 Introduction to Political Science.

POL213 Mediation Skills [3-0, 3 cr.]
This course provides students with an understanding of the role, and types of mediation. It also provides students with an overview of how mediation is used as a means of resolving conflict. The course discusses the relationship that exists between mediation and legal processes and gives students a solid grounding in the theoretical underpinnings of mediation. The course also gives students the opportunity to learn some of the main skills involved in mediation through in-class exercises and simulations.

POL222 Comparative Political Systems [3-0, 3 cr.]
The course provides an overview of political systems in the world and compares the ways governments operate and people behave in political life. It examines why different countries in the world implement different forms of government and electoral systems. It compares the ways different governments interact with their respective citizens in both representation and policy making. 
Prerequisites: POL201 Introduction to Political Science.

POL231 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?

POL240 Concepts of World Politics [3-0, 3 cr.]
This course offers an introduction to the study of International Relations through discussion and analysis of: the growing relationship between conflict, security and development, the sources of foreign policy and international conflict, the political economy of national security, international organizations, global governance, and the gap between North and South, among other topics.
Prerequisites: POL201 Introduction to Political Science.

POL241 Model UN: Diplomatic Skills & Simul. [3-0, 3 cr.]
The course explores the workings of the United Nations and expands the students’ global awareness on issues ranging from international disputes to cooperation towards development. The course initiates students to international diplomacy by letting them simulate various UN member states and investigate multilateral issues from a national perspective. The students would develop public speaking, debating, and negotiation skills; all while engaging in consensus building and learning prejudice reduction mechanisms.

POL252 Fundamentals of Conflict Resolution [3-0, 3 cr.]
This introductory course explores the nature of conflict and a variety of tools that can be used to analyze conflict at its different levels. Drawing from broad theoretical bases, the course examines the complex causes of conflict within the framework of human rights and needs. The course introduces students to models for analyzing conflict and practical ways for responding to conflict, including skills of interpersonal communication, negotiation and mediation.
POL312 Politics of the Developing Areas [3-0, 3 cr.]
This course provides an introduction to the comparative politics of the developing world. It addresses many of the key themes, issues, and forces that have shaped socioeconomic and political developments in Africa, Asia and Latin America. These include the legacies of colonialism, the achievement of independence, challenges of state building and regime consolidation, economic policy choices, the politics of ethnicity and gender, revolution, and the role of the military, and democratization.
Prerequisites: POL201 Introduction to Political Science.

POL314 Research Methodology [3-0, 3 cr.]
The course examines the various approaches to social and scientific inquiries. It explains the different methods social scientists utilize in order to construct and verify political theories. It provides the student with the analytical skills required to design scientific research, construct a theory, implement appropriate research methods, identify a required research sample, conduct research analysis, verify hypotheses, make generalizations, and write a research report.
Prerequisites: POL201, SOC201, PSY201 or SOC301.

POL315 Community Conflict and Conflict Resolution [3-0, 3 cr.]
This course focuses on the social dimension of conflict by looking at group dynamics and social interactions. The course reviews concepts such as group formation, inter- and intra-group communication, group dynamics, cultural, religious and other influences as well as ways communal conflict manifest themselves and how conflicts tend to be resolved in communities. Students would review group conflicts and analyze community conflicts that they are familiar with. This course will be of significant relevance to Political Science, International Relations and Social Studies students. The course will review the role of nongovernmental and governmental organizations in contributing to community conflict resolution.

POL316 Introduction to International Conflict and Conflict Resolution [3-0, 3 cr.]
The course is designed to introduce students to the causes and dynamics of international conflict and ways they are addressed at the international level. The course begins by reviewing the different theories that explain the emergence of international conflict. It then studies the various factors that lead to international conflict and the dynamics that encourage conflict escalation. Finally, the course reviews the various techniques used to intervene in such conflicts including early warning systems, first and second track diplomacy, sanctions and military intervention among others.

POL317 Conflict Resolution Tools for the Business World [3-0, 3 cr.]
This course provides an overview of the skills and tools needed to understand different types of conflicts in a business setting. It also provides students with information on how to analyze such conflicts and review techniques used for effective intervention in such conflicts. Real life examples are used to illustrate such conflicts and the processes that have helped achieve conflict resolution or transformation. Furthermore, leadership role and cultural influences are reviewed in addition to conflict resolutions skills such as facilitation, negotiation and mediation techniques.

POL321 American Government and Politics [3-0, 3 cr.]
The structure and processes of the American 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.
Prerequisites: POL201 Introduction to Political Science.

POL322 Foreign Policy of the Major Powers [3-0, 3 cr.]
A survey and analysis of the policies of the great powers in the post-cold war period. Changing patterns of ties between the great powers in light of the USSR’s disintegration and Russia’s revival; the continuing strength of the U.S.; the end of the cold war; Japan’s and Germany’s rise as economic giants; China’s economic growth; European integration and the U.N.’s revival. Domestic and
international influences on great power decision-making, notably security and economic matters. 

Prerequisites: POL201 Introduction to Political Science.

**POL323 Middle East Governments and Politics [3-o, 3 cr.]**
This course surveys the major issues and problems that dominate the political scene in the Middle East, paying special attention to a number of themes including the process of post-colonial state formation; the rise of Arab nationalism and other forms of nationalism; variations in regime consolidation and state-society relations; the institutional structures of authoritarianism; the Islamist challenge; and democratic transitions. 

Prerequisites: POL201 Introduction to Political Science.

**POL331 International Organization [3-o, 3 cr.]**
Concepts and the evolution of international organization. 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. 

Prerequisites: POL201 Introduction to Political Science.

**POL332 Public International Law [3-o, 3 cr.]**
The nature of international law sources, international law and municipal law, the international systems legal organization, states (their territory and jurisdiction) as subjects of international law, international treaties and agreements, diplomatic and consular agents, laws of war, neutrality, belligerent occupation and war crimes. 

Prerequisites: POL201 Introduction to Political Science.

**POL335 Politics of Multiculturalism [3-o, 3 cr.]**
Multiculturalism is a timely topic in current political debates. This course explores various perspectives on multiculturalism, why multicultural policy has become important, what types of minorities need to be accommodated, and what kinds of policy contexts are important for multiculturalism in different countries. The course examines multicultural debates from both a sociological and a political theoretical perspective, and the political arguments for and against multiculturalism. 

Prerequisites: POL201 Introduction to Political Science.

**POL346 International Political Economy [3-o, 3 cr.]**
This course provides students an overview of International Political Economy (IPE). It introduces students to the making of the international political economy as well as the main themes and debates in IPE. Topics covered include the nature of the international political economy, theories of IPE, the role of international institutions, the politics of international trade, complex interdependence, and foreign direct investment. 

Prerequisites: POL201 Introduction to Political Science.

**POL357 Globalization and Political Change [3-o, 3 cr.]**
This course introduces the phenomenon of globalization. It examines its historical roots and the different views associated with its universal impacts. Is globalization helping the integration of world cultures, economies, and states or further fragmenting and differentiation? How is globalization helping the improvement of the quality of life and how is it not? How is globalization undermining war and at other times fuelling its causes? This course will address these questions from various points of view. 

Prerequisites: POL201 Introduction to Political Science.

**POL368 Political Parties and Elections in America [3-o, 3 cr.]**
This course focuses on two key elements of democratic politics using the case of the United States: political parties and elections. It explores elections, particularly presidential elections, as devices by which citizens may or may not control what their government does as well as analyzes political parties as selectors of candidates and organizers of political choices. The role of money, advertising, political activists, and the mass media are also discussed. 

**POL415 Negotiation & Bargaining [3-o, 3 cr.]**
This course explores negotiation and bargaining from the individual to the international level, including both public and private sector examples. It covers
the context of negotiation, proceeds to the structure of negotiations and to the
dynamics, strategy and tactics for persuading, coercing, and bargaining through
to conclusion. Group and national differences and approaches will be highlight-
ed and demonstrated using intra-cultural negotiating exercises.

**Prerequisites: POL201 Introduction to Political Science**

**POL422 The Middle East in World Affairs [3-0, 3 cr.]**
This course examines inter-state conflict in the modern Middle East. It examines contending theories of Middle East state behavior, and applies them to the main crises or events that have shaped regional dynamics. Special focus is given to the Arab-Israeli conflict, regional rivalries, the policies of the main international and regional actors, and domestic factors in shaping systemic dynamics, among other topics. The course also evaluates the causes of the different conflicts from contending theoretical perspectives.

**Prerequisites: POL201 Introduction to Political Science**

**POL426 Politics of the European Union [3-0, 3 cr.]**
This course examines both the domestic politics and international relations of European Union states as well as considers the policies and roles of the European Union as a supranational actor in world politics.

**Prerequisites: POL201. Introduction to Political Science**

**POL432 Diplomatic and Consular Services [3-0, 3 cr.]**
The structure, functions and procedures of diplomatic and consular services; recruitment of diplomatic and consular personnel; diplomacy and diplomatic theory; diplomatic privileges and immunities.

**Prerequisites: POL201 Introduction to Political Science.**

**POL437 Topics in Political Science- International Affairs [3-0, 3 cr.]**
Courses designed to cover topical areas based on visiting instructors and/or current events.

**Prerequisites: POL201. Introduction to Political Science**

**POL448 Internship [3-0, 3 cr.]**
Introduction to the world of politics, government and related career fields in order to put into practice skills and theories learned in the classroom. Internships will take place at government agencies, IGOs, or NGOs approved by the department. Valuable work experience and credit is gained in translating theoretical and analytical skills in political science/international affairs into professional practice.

**Prerequisites: Consent of department.**

**POL499 Senior Study [3-0, 3 cr.]**
The course aims at guiding senior standing students from the selection of an appropriate research design applicable to the analysis of a political question of interest through to the completion of an independent research paper. It teaches the student how to conduct independent study and write research papers and reports.

**Prerequisites: senior standing.**

**PSYCHOLOGY**

**PSY101 Introduction to Psychology [3-0, 3 cr.]**
Psychology evolved out of both philosophy and biology. Discussions of these two subjects date as far back as the early Greek thinkers including Aristotle and Socrates. The word psychology is derived from the Greek word psyche, meaning ‘soul’ or ‘mind.’ Psychology is both an applied and academic field that studies the human mind and behavior. Research in psychology seeks to understand and explain thought, emotion and behavior. Applications of psychology include mental health treatment, performance enhancement, self-help, and many other areas affecting health and daily life.

**PSY201 Introduction to Psychology [3-0, 3 cr.]**
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.

**PSY202 Child Psychology [3-0, 3 cr.]**
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.

**PSY203 Psychology of Youth [3-0, 3 cr.]**
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.

*Prerequisites: PSY201 Introduction to Psychology, or PSY202 Child Psychology.*

**PSY204 Social Psychology [3-0, 3 cr.]**
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.

*Prerequisites: PSY201.*

**PSY234 Development Across the Life Span [3-0, 3 cr.]**
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.

*Prerequisites: PSY201 for psychology majors.*

**PSY245 Research Methods I [3-0, 3 cr.]**
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.

*Prerequisites: PSY201.*

**PSY257 Sensation and Perception [3-0, 3 cr.]**
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, and perceptual disorders such as inability to see motion or/and identify objects or faces.

*Prerequisites: PSY201.*

**PSY267 Cultural Psychology [3-0, 3 cr.]**
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.

*Prerequisites: PSY201.*

**PSY295 Theories of learning [3-0, 3 cr.]**
This course provides an analysis of the factors in learning, through a survey of the major theories of learning. Special emphasis is placed on the learning principles and their implications in the teaching process.

*Prerequisites: PSY201.*

**PSY311 Exceptional Child [3-0, 3 cr.]**
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.
**PSY320 Theories of Personality [3-0, 3 cr.]**
This course provides a comprehensive coverage of the most influential theories of personality. It also examines the interplay of forces that shape the individual's personality throughout the course of life.
*Prerequisites: PSY201.*

**PSY322 Mind and behavior [3-0, 3 cr.]**
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.
*Prerequisites: PSY201.*

**PSY335 Industrial Organizational Psychology [3-0, 3 cr.]**
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 PSY201.*

**PSY345 Research Methods II [3-0, 3 cr.]**
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.

**PSY355 Biological Basis of Behavior [3-0, 3 cr.]**
This course is designed to familiarize students in the principles of biological psychology and to the fundamentals of the relationships between behavior and brain mechanisms. This course constitutes a comprehensive survey of the anatomical structures and physiological processes that determine behavior including the nervous, sensory and motor systems that are necessary for our ability to function effectively in the world.
*Prerequisite PSY201.*

**PSY425 Abnormal Psychology [3-0, 3 cr.]**
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 PSY320 Theories of Personality.*

**PSY466 Counseling Psychology [3-0, 3 cr.]**
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.
*Prerequisites: PSY320 Theories of Personality.*

**PSY498 Topics in Psychology [3-0, 3 cr.]**
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. Senior level.
*Prerequisites: PSY201 and approval of instructor.*

**PSY499 Psychology Senior Study [3-0, 3 cr.]**
This course is an independent scholarly work on a topic chosen by the student.
*Prerequisites: senior standing and PSY204 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-o, 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-o, 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-requisites: ENG202 Sophomore Rhetoric.*

**SOC215 Introduction to Gender Studies [3-o, 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-o, 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-o, 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-o, 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-o, 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-o, 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.  
*Prerequisites: SOC201 Introduction to Sociology*

**SOC321 Sociology of the Arab World [3-o, 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-o, 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-o, 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.  
*Prerequisites: SOC201 Introduction to Sociology*
SOC403 Social Work Intervention II [3-0, 3 cr.]
This course examines various intervention roles, methods, and techniques in social work, which include planning, contracting, identifying alternative interventions, selecting and implementing appropriate courses of action, monitoring, evaluating, and terminating.
Prerequisites: SOC201 Introduction to Sociology

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.
Prerequisites: SOC201 Introduction to Sociology

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.
Prerequisites: SOC201 Introduction to Sociology

SOC488 Topics in Sociology [3-0, 3 cr.]
This course covers topics in Sociology.

SOC499 Senior Study [1-6, 3 cr.]
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: ENG101 English I.
INTERNATIONAL AFFAIRS (GRADUATE)

INA811 Theories of International Relations [3-o, 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-o, 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-o, 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-o, 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-o, 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-o, 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-o, 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-o, 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-o, 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-o, 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.
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- Minor in Economics

**Department of Hospitality and Marketing (HMKT)**
- B.S. in Business with emphasis in Marketing
- B.S. in Hospitality and Tourism Management
- Minor in Hospitality and Tourism Management

**Department of Management Studies (MNGT)**
- B.S. in Business with emphasis in Family Entrepreneurial Business Management
- B.S. in Business with emphasis in International Business
- B.S. in Business with emphasis in Management

**Department of Information Technology and Operation Management (ITOM)**
- B.S. in Business Studies with emphasis in Information Technology Management
- Minor in Business

**Graduate Programs**
- Master of Business Administration
- Executive Master of Business Administration
The School of Business operates on both the Beirut and Byblos campuses. LAU admitted the first batch of business students in 1979 in Beirut and 1994 in Byblos. Prior to 1980, the business division was hosted under the umbrella of the social sciences department. As of fall 1980, the Business Studies division started to operate as an independent entity granting B.A. degrees in different concentrations of business administration. The Master of Science (M.S.) in Business was launched in fall 1981. The Business program continued to be offered under the umbrella of the Division of Business Studies until spring of 1992.

In 1992–1993, a full-fledged School of Business was established with the appointment of two directors—one for each campus—and several chairs to manage the various programs. In 1996–1997 two deans were appointed to take the leadership roles instead of the former directors. In the same year, a Master of Business Administration (M.B.A.) replaced the M.S. degree program. Two new undergraduate programs leading to bachelor’s degrees in Economics and Hospitality and Tourism Management were introduced in 2000 followed by the Executive Master in Business Administration (E.M.B.A.) program. In 2001, the business school started to award a B.S. degree in business instead of the B.A. degree. In 2011, the university appointed one dean for the School of Business.

There is a dedicated building for the School of Business in Beirut and a shared building in Byblos. Buildings are equipped with: (1) state of the art classrooms (smart classrooms), (2) office facilities, (3) seminar rooms, (4) auditorium, (5) business computer labs which help graduate assistants provide students with technical help and are equipped with the state-of-the-art desktop computers and high-speed laser printers as well as updated business and statistical software, (6) a cooperative learning center to support students who are experiencing academic difficulties, (7) hospitality management labs integrating classroom instruction with extensive hands-on experience in food production and restaurant and hotel services, (8) stock market rooms, and (9) lounges, among others.

PROGRAMS/DEGREES AVAILABLE

- B.S. in Business
- B.S. in Economics
- B.S. in Hospitality and Tourism Management
- M.B.A. (Master of Business Administration)
- E.M.B.A. (Executive Master of Business Administration)

Minors in: Business, Economics, Hospitality and Tourism Management

INTERIM DEAN
Said Ladki, Ph.D.

ASSOCIATE DEAN – BYBLOS:
Salpie Djoundourian, Ph.D.

ASSOCIATE DEAN – BEIRUT:
Abdallah Dah, Ph.D.

ASSISTANT DEAN
Ayman Reda, Ph.D.
MISSION

The School of Business at LAU offers quality graduate and undergraduate business and economics programs to develop ethically responsible professionals who are committed to civic engagement and to contribution to economic development in Lebanon and the region. Through excellent teaching, scholarly activities, and professional service, the school provides a student-centered environment to its diverse student population.

VISION

Our vision is to earn global recognition as a leading school of business in Lebanon and the Middle-East, and be recognized for excellence in teaching, research and community service. The faculty, students and administrators in the School of Business are committed to academic integrity, and ethical and professional conduct.

VALUES

The School of Business encourages its faculty and students to follow this value system in all their endeavors. LAU’s School of Business core value system includes ethics, integrity and mutual respect for diversity and equality.

DEPARTMENT OF FINANCE AND ACCOUNTING (FINA)

The Department of Finance and Accounting is committed to providing professional education that prepares students for a competitive and changing global business environment. The department mission involves combining theoretical education, direct application and proper business ethics that allow students to develop ideas into business projects.

Our students carry a broad conceptual knowledge and technical expertise that enable them to occupy jobs in leading organizations worldwide. The finance program prepares students for careers in commercial and investment banking, financial management, and asset and debt management. The accounting program prepares students for positions in bookkeeping, auditing, tax consulting and financial planning.

Elias Raad, Chair
Bernard Ben Sita, Associate Chair

FACULTY:

- Said Elfakhani, Professor
- Hassouna Fedhila, Professor
- Elias Raad, Associate Professor
- Anwar Boumosleh, Associate Professor
- Sebouh Aintablian, Assistant Professor
- Bernard Ben Sita, Assistant Professor
- Mustafa Dah, Assistant Professor
- Walid El Gammal, Assistant Professor
- Mahmoud Araissi, Visiting Assistant Professor
- Tony Assad, Lecturer
- Keghouhie Bogharian, Lecturer
- Janine Zakka, Lecturer
- Abdul Majid Harfoushe, Instructor
ACADEMIC PROGRAMS

The Department of Finance and Accounting offers the following academic programs:

- B.S. in Business with emphasis in Accounting
- B.S. in Business with emphasis in Banking and Finance

Both programs involve core business courses and a selection of courses that determine the students’ focus. In addition, students are given the option to choose from a variety of business electives that fit their individual needs and prepare them to specific careers.

CAREER OPPORTUNITIES

Our students carry a broad conceptual knowledge and technical expertise that enable them to occupy jobs in leading organizations worldwide.

The accounting program prepares students for careers such as auditor, assistant controller, bank examiner, benefits administrator, budgetary control analyst, chief cost accountant, inventory control specialist, treasurer, internal auditor and other similar fields.

The finance program prepares students for careers in the stock market, portfolio management, securities research, commercial and investment banking, financial institutions, corporations and governments.

DEPARTMENT OF ECONOMICS (ECON)

The Department of Economics offers a program that gives students an excellent grounding in both theoretical and applied economics. The program aims at preparing economics graduates to work in the private and public sectors. The program also aims at preparing students for graduate work in economics, business, law, public administration, international relations and related fields. Members of the economics faculty are engaged in research in many areas of economics and have gained local, regional and international visibility.

Ghassan Dibeh, Chair
Walid Marrouch, Associate Chair

FACULTY:

- Salaheddin Abosedra, Professor
- Abdallah Dah, Professor
- Ghassan Dibeh, Professor
- Wassim Shahin, Professor
- Salpie Djoundourian, Associate Professor
- Saifedean Ammous, Assistant Professor
- Ali Fakih, Assistant Professor
- Mhammad Karake, Assistant Professor
- Ayman Reda, Assistant Professor
- Amjad Toukan, Assistant Professor
- Hussein Zeaiter, Assistant Professor
- Mary Habib Tofaili, Lecturer

Examples of Job Opportunities in Economics:

- Economist positions in the banking sector
- Economist positions in the public sector
- Economic consultancy positions
- Management consultancy positions
- Business and economic reporting positions
- Policy advising positions (local and international organizations, foreign affairs and diplomacy)
- Graduate Work in Business, Economics, and Finance
DEPARTMENT OF HOSPITALITY AND MARKETING (HMKT)

Josiane Sreih, Chair
Leila Messara: Associate Chair

FACULTY:
• Jim Finlay, Professor
• Said Ladki, Professor
• Nouri Beyrouti, Associate Professor
• Guy Assaker, Assistant Professor
• Rania El-Haddad, Assistant Professor
• Maya Farah, Assistant Professor
• Hassan Naja, Senior Instructor
• Albert Andraos, Instructor
• Nadia Azzam, Instructor
• Annelie Baalbaki, Instructor
• Bassem Slim, Instructor
• Afif Hachem, Assistant Instructor
• Edward Vitale, Retiree

The Hospitality and Marketing department is committed to providing top-quality education through the use of various educational technologies and hands-on application while ensuring that students are learning relevant materials to prepare them for leadership positions in the market place.

Excellence in hospitality and management programs is achieved through ongoing faculty research, continuous curriculum development and the offering of new courses in different areas of specializations as needed in the market place. To enhance students’ potential and gain greater industry exposures, annual scholarly, academic, and professional conferences are held.

ACADEMIC PROGRAMS

The Department of Hospitality and Marketing offers the following academic programs:
• B.S. in Hospitality and Tourism Management
• B.S. in Business with emphasis in Marketing
  Minor in Hospitality and Tourism Management

CAREER OPPORTUNITIES

Upon the completion of a minimum of sixty credits (junior standing), students are required to participate in a hands-on training program which blends classroom learning with laboratory applications to simulate real life environment. Academic credits are earned from internship. Internship helps students establish ties with industry and prepares them for careers in real life. In addition, our faculty members establish and place/train students in various countries at world-renowned companies.

National partners include:
• Intercontinental Le Vendome, Beirut
• Intercontinental Phoenicia, Beirut
• Le Meridian Commodore, Beirut
• Le Royal, Beirut
• Movenpick Hotel, Beirut
• Riviera Hotel, Beirut
• Regency Palace, Beirut
• TGI Friday’s, Beirut

International partners include:
• Crown Reef Resorts in South Carolina, U.S.A.
• Crystal Sands, U.S.A.
• Orange Lake, U.S.A.
• Sea World in Florida, U.S.A.
• West Gate Lakes, U.S.A.
• Al Bustan Rotana Hotel, Dubai
• Burj Al Arab Hotel, Dubai
DEPARTMENT OF MANAGEMENT STUDIES (MNGT)

Silva Karkoulian, Chair
Guy Assaker, Associate Chair

FACULTY:
• Jalal Armache, Associate Professor
• Mirou Jaana, Associate Professor
• Silva Karkoulian, Associate Professor
• Josiane Sreih, Associate Professor
• Wissam AlHussaini, Assistant Professor
• Grace Dagher, Assistant Professor
• Renee Ghattas, Assistant Professor
• Hussein Ismail, Assistant Professor
• Leila Messarra, Assistant Professor
• Walid Touma, Assistant Professor
• Philippe Zgheib, Assistant Professor
• Bassem Maamari, Lecturer
• Michel Majdalani, Lecturer
• Ghada Abi Fares, Instructor
• Amal Rouhana, Instructor

The Department of Management Studies at the School of Business is committed to familiarizing students with knowledge, skills and abilities they need for building a successful career path. The Management Studies department lays down a solid foundation for students to excel and become pioneers in their fields of work including business management, public administration, and entrepreneurial ventures. The department’s mission lies in advancing knowledge, broadening insights and nurturing the minds of the young to become the leaders of the future. The department is also committed to endow students with a comprehensive vision of advanced organizational strategy, design and management. It develops in them a thorough understanding of business functions, analytical problem solving and decision making skills. It draws the right path to diversity, integrity, and professionalism in a business world governed by competition and continuous growth.

ACADEMIC PROGRAMS

The Department of Management Studies offers the following academic programs:
• B.S. in Business with emphasis in Management
• B.S. in Business with emphasis in Family and Entrepreneurial Business Management emphasis
• B.S. in Business with emphasis in International Business

CAREER OPPORTUNITIES

Business management majors may seek a variety of job positions such as:
• Operation managers
• Business process improvement managers
• Human resources development directors
• Project managers

DEPARTMENT OF INFORMATION TECHNOLOGY AND OPERATIONS MANAGEMENT (ITOM)

Khodr Fakih: Chair
Guy Assaker, Associate Chair

FACULTY:
• Tarik Mikdashi, Professor
• Abdel Nasser Kassar, Associate Professor
• Issam Kouatli, Associate Professor
• Raed El Khalil, Assistant Professor
Information and Operations Management integrates analytical, technological and people skills to meet the organizational goals and business challenges of an enterprise. ITM majors are expected to analyze business problems and processes, and to develop, implement and maintain business solutions through the effective and strategic management of information and information technology.

ACADEMIC PROGRAMS

- B.S. in Business with emphasis in Information Technology Management
- Minor in Business

CAREER OPPORTUNITIES

- Information systems consultants
- Information systems managers
- Information technology executives
- Information systems analysis
- Hardware design consultants
- Telecommunications consultants
- Small business information systems
- Network operations managers
Bachelor of Science (B.S.) in Business

The student pursuing this program has the choice to select his/her area of emphasis from a variety of concentration areas (specialization studies) that includes: accounting, banking & finance, family and entrepreneurial business management, information technology management, international business, management and marketing. The Bachelor of Science degree may be obtained at the Beirut and Byblos campuses. This program enables students to use the appropriate technology and decision-making tools within their respective areas of concentration in addition to understanding of the global impact of economic conditions and cultural dimensions on their respective areas of concentration. The program also serves as a rigorous preparation for graduate study in business administration and other fields.

GOALS AND OUTCOMES

- **GOAL 1:** The graduate will have essential knowledge of various disciplines in business.
  - **Outcome 1.1:** The graduate will demonstrate essential knowledge acquired in the following disciplines: accounting, economics, finance, management, and marketing. The graduate will possess problem solving capabilities. The graduate will be able to propose a solution to a business problem using quantitative and/or qualitative reasoning.

- **GOAL 2:** The graduate will possess problem solving capabilities.
  - **Outcome 2.1:** The graduate will be able to propose a solution to a business problem using quantitative and/or qualitative reasoning.

- **GOAL 3:** The graduate will have an awareness of social and ethical issues.
  - **Outcome 3.1:** The graduate will be able to examine the social and ethical issues involved in a business case.

- **GOAL 4:** The graduate will be committed to civic engagement.
  - **Outcome 4.1:** The graduate will demonstrate the process and benefits of being engaged in civic service.

- **GOAL 5:** The graduate will use written and oral communication effectively.
  - **Outcome 5.1:** The graduate will be able to deliver an effective oral presentation.
  - **Outcome 5.2:** The graduate will be able to demonstrate effective written communication.

CURRICULUM

Core Requirements (33 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC203</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC204</td>
<td>Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ECO201</td>
<td>Micro Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECO202</td>
<td>Macro Economics</td>
<td>3</td>
</tr>
<tr>
<td>BUS213</td>
<td>Business Law and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>QBA201</td>
<td>Managerial Statistics</td>
<td>3</td>
</tr>
<tr>
<td>FIN301</td>
<td>Managerial Finance</td>
<td>3</td>
</tr>
<tr>
<td>MGT201</td>
<td>Introduction to Management</td>
<td>3</td>
</tr>
<tr>
<td>ITM211</td>
<td>Information Technology Manage</td>
<td>3</td>
</tr>
<tr>
<td>MKT201</td>
<td>Introduction to Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MGT420</td>
<td>Strategic Planning and Policy Formulation</td>
<td>3</td>
</tr>
<tr>
<td>BUS299</td>
<td>Civic Engagement</td>
<td>0</td>
</tr>
</tbody>
</table>

B.S. IN BUSINESS WITH EMPHASIS IN ACCOUNTING

The minimum number of credits required to graduate with accounting emphasis is 92 credits distributed as follows: A total of 49 credits are needed in the major (Business core requirements: 33 credits; emphasis requirements: 16 credits; other requirements: 9 credits) and free electives (6 credits), other than the Liberal Arts Curriculum (34 credits), 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.

**Core Requirements (33 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC203</td>
<td>Financial accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC204</td>
<td>Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS213</td>
<td>Business Law &amp; Ethics</td>
<td>3</td>
</tr>
<tr>
<td>BUS299</td>
<td>Civic Engagement</td>
<td>0</td>
</tr>
<tr>
<td>ECO201</td>
<td>Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECO202</td>
<td>Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>FIN301</td>
<td>Managerial Finance</td>
<td>3</td>
</tr>
<tr>
<td>ITM211</td>
<td>Information Technology Management I</td>
<td>3</td>
</tr>
<tr>
<td>MGT201</td>
<td>Introduction to Management</td>
<td>3</td>
</tr>
<tr>
<td>MGT420</td>
<td>Strategic Planning and Policy Formation</td>
<td>3</td>
</tr>
<tr>
<td>MKT201</td>
<td>Introduction to Marketing</td>
<td>3</td>
</tr>
<tr>
<td>QBA201</td>
<td>Managerial Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Accounting Emphasis Requirements (16 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC302</td>
<td>Cost Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC311</td>
<td>Intermediate Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>ACC312</td>
<td>Intermediate Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>ACC401</td>
<td>Advanced Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC412</td>
<td>External Auditing</td>
<td>3</td>
</tr>
<tr>
<td>ACC399</td>
<td>Accounting Internship</td>
<td>1</td>
</tr>
</tbody>
</table>

**Other Requirements (9 credits)**

Business electives: Choose any **two** of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC310</td>
<td>Accounting Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>ACC405</td>
<td>Forensic Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC413</td>
<td>Internal Auditing</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC415</td>
<td>Tax Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC420</td>
<td>Information Technology Audit</td>
<td>3</td>
</tr>
<tr>
<td>ACC421</td>
<td>International Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACC431</td>
<td>Financial Statement Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MGT236</td>
<td>Communication Skills</td>
<td>1</td>
</tr>
<tr>
<td>MGT336</td>
<td>Developing a Business Plan</td>
<td>1</td>
</tr>
<tr>
<td>MGT436</td>
<td>Personality and Career Development</td>
<td>1</td>
</tr>
<tr>
<td>OPM301</td>
<td>Operation and Production Management</td>
<td>3</td>
</tr>
</tbody>
</table>

*Note: The student has 3 credits in free electives. The student is encouraged to take ECO201 and ECO202 as part of Liberal Arts Curriculum, which will free up six additional credits in free electives.*

**B.S. IN BUSINESS WITH EMPHASIS IN BANKING & FINANCE**

A minimum 92 credits are needed for graduation distributed as follows: A total of 45 credits are needed in the major (business core requirements: 33 credits; emphasis requirements: 12 credits; other requirements: 9 credits; free electives: 10 credits), other than the Liberal Arts Curriculum (34 credits), to provide students with the skills and knowledge in banking and finance. 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 a potential executive for Lebanon’s banking sector and the financial service industry.

**Required Courses (12 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN302</td>
<td>Financial Institutions &amp; Markets</td>
<td>3</td>
</tr>
<tr>
<td>FIN311</td>
<td>Banking Operations</td>
<td>3</td>
</tr>
<tr>
<td>FIN411</td>
<td>Security Analysis &amp; Portfolio Management</td>
<td>3</td>
</tr>
<tr>
<td>FIN413</td>
<td>Corporate Finance</td>
<td>3</td>
</tr>
</tbody>
</table>
Business Electives/Other Requirements (9 credits):
Choose any nine credits of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC431</td>
<td>Financial Statements Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FIN321</td>
<td>Introduction to Insurance</td>
<td>3</td>
</tr>
<tr>
<td>FIN322</td>
<td>Global Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>FIN323</td>
<td>Islamic Banking and Finance</td>
<td>3</td>
</tr>
<tr>
<td>FIN399</td>
<td>Internship/Practicum</td>
<td>1</td>
</tr>
<tr>
<td>FIN401</td>
<td>Senior Seminar in Finance</td>
<td>3</td>
</tr>
<tr>
<td>FIN421</td>
<td>Financial Derivatives</td>
<td>3</td>
</tr>
<tr>
<td>MGT236</td>
<td>Communication Skills</td>
<td>1</td>
</tr>
<tr>
<td>MGT336</td>
<td>Developing a Business Plan</td>
<td>1</td>
</tr>
<tr>
<td>MGT436</td>
<td>Personality and Career Development</td>
<td>1</td>
</tr>
<tr>
<td>OPM301</td>
<td>Operation and Production Management</td>
<td>3</td>
</tr>
<tr>
<td>QBA301</td>
<td>Intermediate Managerial Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

B.S. IN BUSINESS WITH EMPHASIS
IN FAMILY AND ENTREPRENEURIAL BUSINESS MANAGEMENT

A minimum 92 credits are needed for graduation distributed as follows: A total of 45 credits are needed in the major (business core requirements: 33 credits; emphasis requirements: 12 credits), other requirements (9 credits), and free electives (10 credits), other than the Liberal Arts Curriculum (34 credits), to provide students with the skills and knowledge in family and entrepreneurial business management.

This area of emphasis caters to students who belong to families already in business and who wish to preserve its continuity, maintaining the family’s wealth from generation to generation. The emphasis is also intended for students who wish to start their own businesses as it encourages entrepreneurship and the building of solid guidelines for future business start-ups.

The courses in this emphasis are designed in such a way that they address the complex workings and challenges of family-owned and family-run businesses. Students will not only get working knowledge of the tools and concepts involved, but they will also develop action plans for their family businesses, manage growth opportunities, and acquire, frameworks, analytical skills, techniques, and decision making tools that can be used in the growing entrepreneurial businesses.

Emphasis Requirements (12 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEM301</td>
<td>Entrepreneurial &amp; Small Business Management</td>
<td>3</td>
</tr>
<tr>
<td>FEM304</td>
<td>Family Business Management</td>
<td>3</td>
</tr>
<tr>
<td>FEM322</td>
<td>Entrepreneur Marketing</td>
<td>3</td>
</tr>
<tr>
<td>FEM333</td>
<td>Venture Capital &amp; Entrepreneurial Financing</td>
<td>3</td>
</tr>
</tbody>
</table>

Other Requirements (9 credits)
Choose any nine credits of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO301</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>FEM311</td>
<td>Small Business Start-Up Lab</td>
<td>3</td>
</tr>
<tr>
<td>FEM399</td>
<td>Internship/Practicum</td>
<td>1</td>
</tr>
<tr>
<td>FEM488</td>
<td>Special Topics in Family &amp; Entrepreneurial Business</td>
<td>3</td>
</tr>
<tr>
<td>IBS311</td>
<td>Managing Multinational Corporations</td>
<td>3</td>
</tr>
<tr>
<td>MGT236</td>
<td>Communication Skills</td>
<td>1</td>
</tr>
<tr>
<td>MGT301</td>
<td>Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MGT336</td>
<td>Developing a Business Plan</td>
<td>1</td>
</tr>
<tr>
<td>MGT401</td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>MGT436</td>
<td>Personality and Career Development</td>
<td>1</td>
</tr>
<tr>
<td>MGT441</td>
<td>Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>MKT441</td>
<td>Marketing Research</td>
<td>3</td>
</tr>
<tr>
<td>OPM301</td>
<td>Operation and Production Management</td>
<td>3</td>
</tr>
<tr>
<td>QBA301</td>
<td>Intermediate Managerial Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>
B.S. IN BUSINESS WITH EMPHASIS IN INFORMATION TECHNOLOGY MANAGEMENT

A minimum 92 credits are needed for graduation distributed as follows: A total of 48 credits are needed in the major (business core requirements: 33 credits; emphasis requirements: 15 credits; other requirements: 9 credits; free electives: 7 credits), other than the Liberal Arts Curriculum (34 credits), to provide students with the skills and knowledge in Information Technology Management.

This area of emphasis strives to develop future business leaders and decision makers, and prepares students for high managerial positions in any career paths they choose to pursue.

**Emphasis Requirements (15 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITM201</td>
<td>Computer Programming</td>
<td>3</td>
</tr>
<tr>
<td>ITM301</td>
<td>Business Data Communication</td>
<td>3</td>
</tr>
<tr>
<td>ITM302</td>
<td>Data and Information Management</td>
<td>3</td>
</tr>
<tr>
<td>ITM311</td>
<td>Information Technology Management II</td>
<td>3</td>
</tr>
<tr>
<td>ITM420</td>
<td>System Analysis and Design</td>
<td>3</td>
</tr>
</tbody>
</table>

**Other Requirements (9 credits)**

Choose any nine credits of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITM401</td>
<td>Information Security and Protection</td>
<td>3</td>
</tr>
<tr>
<td>ITM402</td>
<td>Business Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>ITM403</td>
<td>Information Technology Project Management</td>
<td>3</td>
</tr>
<tr>
<td>ITM399</td>
<td>Internship/Practicum</td>
<td>1</td>
</tr>
<tr>
<td>MGT236</td>
<td>Communication Skills</td>
<td>1</td>
</tr>
<tr>
<td>MGT336</td>
<td>Developing a Business Plan</td>
<td>1</td>
</tr>
<tr>
<td>MGT436</td>
<td>Personality and Career Development</td>
<td>1</td>
</tr>
<tr>
<td>OPM301</td>
<td>Operation and Production Management</td>
<td>3</td>
</tr>
<tr>
<td>ITM231</td>
<td>E-Business</td>
<td>3</td>
</tr>
</tbody>
</table>

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B.S. IN BUSINESS WITH EMPHASIS IN INTERNATIONAL BUSINESS

A minimum 92 credits are needed for graduation distributed as follows: A total of 48 credits are needed in the major (business core requirements: 33 credits; emphasis requirements: 15 credits; other requirements: 9 credits; free electives: 7 credits), other than the Liberal Arts Curriculum (34 credits), to provide students with the skills and knowledge in international business context.

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.

**Emphasis Requirements (18 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO401</td>
<td>International Economics</td>
<td>3</td>
</tr>
<tr>
<td>FIN302</td>
<td>Financial Institutions &amp; Markets</td>
<td>3</td>
</tr>
<tr>
<td>IBS311</td>
<td>Managing the Multinational Corporation</td>
<td>3</td>
</tr>
<tr>
<td>IBS321</td>
<td>Global Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>IBS499</td>
<td>Senior Study/Internship</td>
<td>3</td>
</tr>
<tr>
<td>MKT311</td>
<td>International Marketing</td>
<td>3</td>
</tr>
</tbody>
</table>

**Other Requirements (9 credits)**

Choose any nine credits of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS311</td>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>ECO311</td>
<td>Economic Development</td>
<td>3</td>
</tr>
<tr>
<td>FEM488</td>
<td>Special Topics in Family &amp; Entrepreneurial Business</td>
<td>3</td>
</tr>
<tr>
<td>HOM321</td>
<td>Tourism Economic &amp; Cultural Impact</td>
<td>3</td>
</tr>
<tr>
<td>MGT399</td>
<td>Internship/Practicum</td>
<td>1</td>
</tr>
<tr>
<td>MGT236</td>
<td>Communication Skills</td>
<td>1</td>
</tr>
<tr>
<td>MGT336</td>
<td>Developing a Business Plan</td>
<td>1</td>
</tr>
<tr>
<td>MGT436</td>
<td>Personality and Career Development</td>
<td>1</td>
</tr>
</tbody>
</table>
### B.S. IN BUSINESS WITH EMPHASIS IN MANAGEMENT

A minimum 92 credits are needed for graduation distributed as follows: A total of 45 credits are needed in the major (business core requirements: 33 credits, emphasis requirements: 12 credits; other requirements: 9 credits; free electives: 10 credits), other than the Liberal Arts Curriculum (34 credits), to provide students with the skills and knowledge in management context.

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 them in 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.

**Emphasis Requirements (12 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO301</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>MGT301</td>
<td>Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MGT401</td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>MGT441</td>
<td>Human Resources Management</td>
<td>3</td>
</tr>
</tbody>
</table>

**Other Requirements (9 credits)**

Choose any nine credits of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS311</td>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>FEM301</td>
<td>Entrepreneurial &amp; Small Business Management</td>
<td>3</td>
</tr>
<tr>
<td>FEM304</td>
<td>Family Business Management</td>
<td>3</td>
</tr>
<tr>
<td>FIN302</td>
<td>Financial Institutions &amp; Markets</td>
<td>3</td>
</tr>
<tr>
<td>HOM205</td>
<td>Lodging Management &amp; Operations</td>
<td>3</td>
</tr>
</tbody>
</table>

### B.S. IN BUSINESS WITH EMPHASIS IN MARKETING

A minimum 92 credits are needed for graduation distributed as follows: A total of 45 credits are needed in the emphasis (business core requirements: 33 credits; emphasis requirements: 12 credits; other requirements: 9 credits; free electives: 10 credits), other than the Liberal Arts Curriculum (34 credits), to provide students with the skills and knowledge in marketing context.

This area of emphasis acquaints students with a full range of skills and knowledge in business management, with a focus on marketing. It instills in students an awareness of the problems of visual design in the world of business and industry. It makes them understand the activities involved in transferring goods and services from producers, to consumers, and prepares them for graduate studies, as well as careers in: sales, advertising, public relations, product management, wholesaling, retailing, and market research.

**Emphasis Requirements (12 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKT304</td>
<td>Consumer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MKT311</td>
<td>International Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKT421</td>
<td>Marketing Research</td>
<td>3</td>
</tr>
<tr>
<td>MKT498</td>
<td>Marketing Strategy</td>
<td>3</td>
</tr>
</tbody>
</table>

**Other Requirements (9 credits)**

Choose any nine credits of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGT236</td>
<td>Communication Skills</td>
<td>1</td>
</tr>
<tr>
<td>MGT336</td>
<td>Developing a Business Plan</td>
<td>1</td>
</tr>
</tbody>
</table>
**COURSE DESCRIPTIONS**

**ACCOUNTING**

**ACC203 Financial Accounting [3-o, 3 cr.]**
An introduction to the theory and practice of accounting and financial reporting that enables students to understand and hence use financial information in decision making. The course covers the accounting cycle, the preparation of financial statements, and accounting for assets, liabilities, equities, revenues and expenses. Computer application of the above topics is used in the learning process.  
*Equivalent to: ACC201 Accounting I.*  
*Prerequisites: None*

**ACC204 Managerial Accounting [3-o, 3 cr.]**
This course provides an introduction to Managerial Accounting. Development of managerial decision-making skills is stressed through the coverage of the following topics: Job-order costing; Process costing; Activity-based costing; Cost-Volume-Profit analysis; Profit planning & budgeting; Segment reporting; Relevant costs; Capital budgeting. Computer application of the above topics is used in the learning process.  
*Prerequisites: ACC203 Financial Accounting*

**ACC302 Cost Accounting [3-o, 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.  
*Prerequisites: ACC203 Financial Accounting and ACC204 Managerial Accounting.*

**ACC310 Accounting Information Systems [3-o, 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.  
*Prerequisites: ACC203 Financial Accounting and ACC204 Managerial Accounting*

**ACC311 Intermediate Accounting I [3-o, 3 cr.]**
An in-depth study of accounting issues related to the measurement and reporting of assets, liabilities and income in accordance with IRFS; emphasis is placed on the theory behind the numbers. The course covers: accounting conceptual framework, the use of time value of money in accounting, accounting for assets and liabilities, and the preparation of financial statements. Computer application of the above topics is used in the learning process.  
*Equivalent to: ACC301 Intermediate Accounting*  
*Prerequisites: ACC204 Managerial Accounting*

**ACC312 Intermediate Accounting II [3-o, 3 cr.]**
A continuation of Intermediate Accounting I, this course is an in depth study of the various components of stockholders’ equity. The course also includes a fairly detailed study of accounting for investment, income taxes, leases, pensions, revenue recognition, preparation of the statement of cash flows, and foot notes disclosures. Computer application of the above topics is used in the learning process.  
*Prerequisites: ACC311 Intermediate Accounting I*
ACC401 Advanced Accounting [3-o, 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.
Prerequisites: ACC312 Intermediate Accounting II

ACC405 Forensic Accounting [3-o, 3 cr.]
The course covers many types of financial statement fraud, including asset misappropriation, fraudulent financial statements, tax fraud, and electronic fraud. Topics include the detection, prevention, investigation and resolution of various types of fraud. Guest speakers and videos can be used to enhance the real-world nature of the course.
Prerequisites: ACC312 Intermediate Accounting II, ACC 401 Advanced Accounting

ACC412 External Auditing [3-o, 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.
Prerequisites: ACC312 Intermediate Accounting II

ACC 413 Internal Audit [3-o, 3 cr.]
The course develops an understanding and appreciation of the role of internal auditing in an organization. It covers the operational approach of the internal auditor in areas such as purchasing, production, personnel, financial management, computer operations and international operations. The course also considers the planning and organizing of an internal audit department and coordination with the outside auditor.
Prerequisites: ACC312 Intermediate Accounting II, ACC 401 Advanced Accounting

ACC415 Tax Accounting [3-o, 3 cr.]
This course considers the principles of taxation and makes a comparative study between the United States and the Lebanese tax laws.
Prerequisites: ACC312 Intermediate Accounting II

ACC420 Information Technology Audit (IT Audit) [3-o, 3 cr.]
The course introduces typical aspects of information technology (IT) audits: the audits of computerized information systems, the computer facility, and the process of developing and implementing information systems. Students will learn to plan, conduct, and report on these three types of IT audits. Additional topics covered by the course include challenges posed by emerging information technologies, advanced audit software, business continuity planning, and the role of the IT auditor as an advisor to management.
Prerequisites: ACC312 Intermediate Accounting II, ACC 401 Advanced Accounting

ACC431 Financial Statements Analysis [3-o, 3 cr.]
Financial Statements provide users with a quantitative picture of the company. This course integrates and enhances students’ knowledge of Financial Accounting Principles and Managerial Finance to help them develop the skills needed to understand, analyze, interpret, and accordingly adjust the information contained in a company’s financial statements. Emphasis is placed on how managers/investors/financial analysts use this information to make well-informed decisions and conclusions with regard to the firm’s operating and financial performance, financial strength, and value.
Prerequisites: ACC203 Financial Accounting, FIN301 Managerial Finance

FIN301 Managerial Finance [3-o, 3 cr.]
This course is concerned with the firm’s investment and financing 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: Goal of the financial managers, cash flow estimation, financial statement analysis, time value of money, risk and return, valuation of bonds and stocks,
Prerequisites: ACC203 Financial Accounting and a completion of 24 credits

FIN302 Financial Institutions & Markets [3-0, 3 cr.]
This course focuses on understanding the operations of financial institutions, markets, and instruments. Topics include central banks and other financial institutions as well as the types of financial markets and instruments, and interest rates.
Prerequisites: ACC203 Financial Accounting; ACC204 Managerial Accounting; ECO201 Microeconomics and ECO202 Macroeconomics

FIN311 Banking Operations [3-0, 3 cr.]
This course is concerned with the management of commercial banks’ operations. It provides students with a description and analysis of those operations. It also covers the techniques and tools commercial bank managers apply to perform their job. Topics include the structure and internal organization of banks, lending policies, asset and liability management, risk management and capital adequacy.
Prerequisites: FIN 301 Managerial Finance and FIN 302 Financial Institutions and Markets

FIN321 Introduction to Insurance [3-0, 3 cr.]
This course covers the theory of risk management and insurance, the institutional aspects of the insurance industry, and the decision-making tools used in the insurance industry.
Prerequisites: FIN 301 Managerial Finance and FIN 302 Financial Institutions and Markets

FIN322 Global Financial Management [3-0, 3 cr.]
This course explores the global financial environment in which a multinational firm operates. The course covers foreign exchange markets, international financial markets, international capital flows, international investing, and international trade and risk management issues. In addition, the course will discuss financial tools used by managers of firms operating in a global market.
Prerequisites: FIN 301 Managerial Finance and FIN 302 Financial Institutions and Markets

FIN323 Islamic Banking and Finance [3-0, 3 cr.]
This course focuses on the principles and implications of the Islamic Shariah (law) pertaining to the economic and financial systems. It covers the operations of Islamic banks by examining various debt-based and profit-sharing financing instruments as well as liquidity and risk management techniques. It reviews different Islamic investment vehicles, including Shariah-compliant equities, Sukuk, and Takaful investments.
Prerequisites: FIN 301 Managerial Finance, FIN 302 Financial Institutions and Markets, and FIN311 Banking Operations

FIN401 Corporate Finance [3-0, 3 cr.]
This course is concerned with the following topics: short- and long-term financial management, including capital budgeting with uncertainty, capital structure, dividend policy, corporate governance, and mergers and acquisitions. It emphasizes the case study approach to learning.
Prerequisites: FIN 301 Managerial Finance and FIN 302 Financial Institutions and Markets

FIN411 Security Analysis & Portfolio Management [3-0, 3 cr.]
This course is concerned with the analysis, evaluation, and trading of financial securities. It also covers bond and stock portfolio management, which includes the topics of: risk and return, diversification, efficient portfolios, market efficiency, and the Capital Asset Pricing Model. Students will gain hands-on experience by managing a portfolio of securities during the term.
Prerequisites: FIN 301 Managerial Finance and FIN 302 Financial Institutions and Markets

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.

Prerequisites: FIN411 Security Analysis and Portfolio Management.

FIN431/ACC431 Financial Statements Analysis [3-0, 3 cr.]
Financial Statements provide users with a quantitative picture of the company. This course integrates and enhances students’ knowledge of Financial Accounting Principles and Managerial Finance to help them develop the skills needed to understand, analyze, interpret, and accordingly adjust the information contained in a company’s financial statements. Emphasis is placed on how managers/investors/financial analysts use this information to make well-informed decisions and conclusions with regard to the firm’s operating and financial performance, financial strength, and value.

Prerequisites: ACC203 Financial Accounting, ACC204 Managerial Accounting, and FIN301 Managerial Finance

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.

Prerequisites: 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.

Prerequisites: 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.*

**FEM322 Entrepreneurial Marketing [3-0, 3 cr.]**
This course addresses the marketing challenges facing entrepreneurial firms in their pre and post-start-up. In a small business, the marketing function cuts across the entire company affecting every aspect of its operation, from finance and production to hiring and purchasing, as well as the company’s ultimate success. As the business environment becomes more turbulent and competition becomes more intense, small business owners must understand the importance of developing creative business strategies. However, the entrepreneur is often undercapitalized, understaffed, and lacks the time and resources needed to respond to these challenges in traditional ways. Therefore, this course looks specifically at how to develop and implement a marketing plan in such a context. The focus is on the strategies and tactics that work for entrepreneurs on limited budgets with special attention to conventional marketing strategies.

*Prerequisites: MKT201 Introduction to Marketing*

**FEM333 Venture Capital & Entrepreneurial Financing [3-0, 3 cr.]**
Raising money to launch and grow a new business venture has always been a challenge for entrepreneurs. However, achieving success depends heavily on the financial knowledge and skill of the entrepreneur. This course introduces students to the financial theories, concepts, and methods that entrepreneurs need to start, grow, and harvest the business. It looks at the process of financing, managing and evaluating a venture including: exploring external financing options (equity-debt capital), the super angel market, cash flow management, forecasting, feasibility, valuation, legal considerations, and exit strategies. In addition, this course introduces a variety of financial topics that relate to small businesses, such as: initial public offering, growing via strategic alliances and valuing the business.

*Prerequisites: FIN301 Managerial Finance*

*Equivalent to: FEB321 Venture Growth Strategies for Entrepreneurs*

**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.*

**INFORMATION TECHNOLOGY MANAGEMENT**

**ITM201 Computer Programming [3-0, 3 cr.]**
Introduction to the fundamental concepts of programming from an object-oriented perspective. Topics are drawn from classes and objects, abstraction, encapsulation, data types, calling methods and passing parameters, decisions, loops, arrays and collections, documentation, testing and debugging, exceptions, design issues, inheritance, and polymorphic variables and methods.

*Prerequisites: none*

**ITM211 Information Technology Management I [3-0, 3 cr.]**
This course covers the problems of managing the information system resource, combining case studies and lectures, to facilitate critical thinking on computer acquisition, information systems development, and organizational development of end-user computing.

*Prerequisites: CSC 201 Computer Applications or higher numbered Computer Science course.*

**ITM230 Introduction to Health Informatics [3-0, 3 cr.]**
This course presents an introduction to Health Informatics from a management perspective and provides an overview of contemporary issues related to the application of information technologies (IT) in health care. It is divided into three parts that emphasize concepts and approaches useful for future
managers in health care organizations. The first part of the course introduces students to the health care management and health informatics concepts, and highlights the critical role of IT in transforming today’s healthcare environment. The second part presents an overview of IT applications and tools that enhance information integration, and support timely decision making, and delivery of health care services. The third part focuses on socio-organizational factors related to the development, implementation, adoption, and evaluation of health IT in organizations.

Prerequisites: ITM211 Information Technology Management

ITM231 E-Business [3-0, 3 cr.]
This course provides an overview of e-commerce from both technological and managerial perspectives. It introduces e-commerce frameworks, and technological foundations; and examines basic concepts such as strategic formulation for e-commerce enterprises, management of their capital structures and public policy. This course is designed to familiarize students with current and emerging electronic commerce technologies using the Internet. Topics include Internet technology for business advantage, managing electronic commerce funds transfer, reinventing the future of business through electronic commerce, business opportunities in electronic commerce, electronic commerce Web site design, and social, political and ethical issues associated with electronic commerce, and business plans for technology ventures.

Prerequisites: ITM211 Information Technology Management.

ITM232 Enterprise Resource Planning (ERP) [3-0, 3 cr.]
Enterprise Resource Planning (ERP) systems exemplify a substantial business investment. ERP systems can help to assure competitiveness, receptiveness to customer needs, efficiency, and flexibility in operating a business in a global economy. Implementing ERP allows companies to re-engineer business practices around “best practices” and to leverage integrated information resources. This course is designed to give you the skills and knowledge you need to successfully plan, design, and implement ERP systems.

Prerequisites: ITM211 Information Technology Management.

ITM301 Business Data Communication [3-0, 3 cr.]
This course is intended to provide you with knowledge and understanding of basic concepts of data communication in business environments as well as of computer networks and protocols. The material will be presented in the context of the Internet reference model, with particular focus on the physical, network, transport, and application layers. Frequently used protocols are presented (Mainly TCP/IP suite), which illustrate concepts and provide insight into practical networks.

Prerequisites: ITM211 Information Technology Management.

ITM302 Data and Information Management [3-0, 3 cr.]
This course offers an introduction to the core concepts in data and information management. It is focused around the core skills of recognizing organizational information requirements, modeling them using conceptual data modeling techniques, translating the conceptual data models into relational data models and validating the structural characteristics with normalization techniques, and implementing and utilizing a relational database.

Prerequisites: ITM201 Computer Programming.

ITM330 Financial and Accounting Information Systems [3-0, 3 cr.]
The course provides instruction in the impact and use of information technology in the financial services sector and accounting transactions, including exposure to and experience with different kinds of financial services and accounting software applications common to the financial and accounting industries.

Prerequisites: ITM211 Information Technology Management.

ITM350 Technology Management [3-0, 3 cr.]
This course will provide the students with the necessary tools to understand in depth the internal operating mechanics of the organization, evaluate various technologies available on the market, suggest appropriate technology solutions, implement the technology and evaluate the results.

Prerequisites: ITM211 Information Technology Management.
ITM398 IT Emerging Topics [3-o, 3 cr.]
This elective course enables the program to address the latest topics and issues in the information technology field. It will present students with new and innovative IS technologies and will assess how these new systems are influencing modern organizations.
Prerequisites: ITM211 Information Technology Management

ITM401 Information Security and Protection [3-o, 3 cr.]
This course will provide the students with the necessary knowledge for a comprehensive coverage of information security, risk management, planning, implementing and managing various security technologies to protect the organization information infrastructure. Students will also learn about the legal, ethical and professional issues in information technology.
Prerequisites: ITM301 Business Data Communications

ITM402 Business Intelligence [3-o, 3 cr.]
Business Intelligence (BI) is essentially the timely, accurate, high value and actionable business insights and the work processes and technologies used to obtain them. This is an introductory course. It will introduce business students to the theoretical concepts and practical applications of BI as a decision support tool so that they can identify problems and opportunities in their companies and apply these techniques. Statistical expertise is neither expected nor essential. Basic statistical concepts will be integrated in the course content. Special attention would be given to existing real-world applications that make use of BI and data mining techniques.
Prerequisites: ITM301 Business Data Communications

ITM403 Information Technology Project Management [3-o, 3 cr.]
This course focuses on the basic aspects related to project management as it applies to the IT context. It introduces students to the most common challenges and risks associated with IT projects. It also presents the management role and major management skills that support the success of these projects, and are essential for delivering IT projects on time, within budget, and according to the desired specifications.
Prerequisites: ITM211 Information Technology Management

ITM420 System Analysis and Design [3-o, 3 cr.]
This is a capstone course where students are engaged in projects that are comprehensive in nature. The emphasis will be on utilizing the knowledge and skills acquired through the program in designing and implementing in a form of a project reflecting the Technical-Management interface function required from the MIS graduate. This course will explore the techniques of object-oriented analysis and design. The emphasis will be upon the development of clean interfaces that permit easy modification and reuse of software components. Students will learn how to use object-oriented techniques in support of programming.
Prerequisites: ITM211 Information Technology Management, senior standing

ITM430 Information Systems Strategy [3-o, 3 cr.]
Technology is changing so fast and most organizations’ survival depends on IT, so planning its effective use is a matter of organizational life and death. IT strategy is gaining attention by businesses. This course explores the concepts and activities involved in developing and delivery IT value to an organization. It takes a senior management perspective in exploring the acquisition, development and implementation of plans and policies to achieve efficient and effective information systems planning and the various approaches that are used in IT strategic systems planning. Prerequisites: ITM211 Information Technology Management

INTERNATIONAL BUSINESS

IBS311 Managing the Multinational Corporation [3-o, 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.
Prerequisites: MGT201 Intro. to Management and MKT201 Intro. to Marketing.
IBS321 Global Financial Management [3-o, 3 cr.]
The course covers the environment of international financial management, foreign exchange risk management, multinational working capital management, financing foreign operations, special financing vehicles, international banking trends and strategies, corporate strategy and foreign direct investment, and the measurement and management of country risk. 
Prerequisites: FIN301 Managerial Finance.

IBS488 Topics in International Business [3-o, 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-o, 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.

MGT236 Communication Skills [1-o, 1 cr.]
A fifteen-hour workshop format that relies on in-class discussions designed to introduce students to teamwork and interpersonal communication skills within a business setting. Students will encounter a set of communication practices such as verbal and non-verbal communication, group communication, writing CV and Business letters, listening skills. 
Prerequisites: Business Major, Sophomore Standing

MGT301 Organizational Behavior [3-o, 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. 
Prerequisites: MGT201 Introduction to Management.

MGT336 Developing a Business Plan [1-o, 1 cr.]
This course is designed to help students acquire the necessary knowledge and skills needed to prepare a comprehensive integrated written business plan. The course will equip the students with the basis for elaborating the different sections of the plan as expected by financing agents. Through the learning process, the students will learn the principles of undertaking a thorough analysis of the different organizational forms and departments, products and services, human resources capacities, markets and marketing programs, as well as financial status and financing tools. 
Prerequisites: Business Major, junior standing

MGT401 Project Management [3-o, 3 cr.]
This course covers the problems of managing projects on identification, design, appraisal, selection, organization, operations, supervision and control, completion and evaluation.
Prerequisites: senior standing, ACC202 Principles of Accounting II and MGT201 Introduction to Management.

MGT420 Strategic Planning and Policy Formulation [3-o, 3 cr.]
This course is intended to be a challenging capstone course for the undergraduate business school curriculum. It is first and foremost a course about “managing for success” and achieving competitive advantage. The course is designed to equip students with the core concepts, frameworks and techniques of strategic management. It provides them with tools to understand and manage the strategic planning process. It enlightens students with the fundamentals of strategic planning and grants them broader insights into strategy formulations and implementations. It is tailored to address all business emphases and to provide a comprehensive and in-depth strategic planning techniques that are applicable to different industries. In analyzing multidisciplinary business case studies, students will practically integrate much of the knowledge gained in the
core business curriculum.

**Prerequisites:** at least 27 credits of core courses completed, senior standing.

**MGT436 Personality and Career Development [1-0, 1 cr.]**
A fifteen-hour workshop designed to introduce students to the importance of personality styles in shaping their careers. Students will be more knowledgeable and understanding of their behavioral preferences that can have significant effects on their career success. Students will also learn how to evaluate and develop their personality styles to match their career objectives.

**Prerequisites:** Business Major, senior standing

**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.

**MARKETING**

**MKT201 Introduction to Marketing [3-0, 3 cr.]**
This course exposes students to various elements of the marketing mix including product pricing, promotion and distribution decisions, as well as environmental factors affecting the marketing process. Topical coverage includes an overview of the dynamic marketing environment, the consumer and business marketing and their buying behaviors, and last but not least the process of market segmentation, targeting and positioning.

**MKT302 Integrated Marketing Communication [3-0, 3 cr.]**
This course introduces students to the concept and application of integrating the various elements of advertising, sales promotion, public relations, direct marketing and other essentials of the marketing mix to support the overall marketing strategy. The course links the fundamentals of segmentation, targeting, positioning, buyer behavior, and branding with planning, budgeting, and executing a comprehensive, integrated marketing communication program from message development through media selection. Topical coverage includes: the formulation and analysis of promotional objectives; the development of promotional campaigns that convert qualified leads into prospects, prospects into new customers, and new customers into long-term relationship partners; the integration of marketing communication knowing how different media work synergistically; the allocation of budget among different promotional tools, media selection, and consumer response to different messages.

**Prerequisites:** MKT201 Introduction to Marketing.

**MKT304 Consumer Behavior [3-0, 3 cr.]**
This course examines the consumer decision making process and the effects of external environmental influences (culture, subculture, social class, reference groups, family, and personal influences) and internal psychological influences on such a process. Focusing on the customer as the key to market success, this course introduces students to the different frameworks of consumer behavior and organizational buying models, and explains how these behaviors are influenced by principles of learning, motivation, personality, lifestyle, perception and
group influence. The principles from a number of disciplines are used to explain buying behavior, including: economics, psychology, social psychology, sociology, and anthropology.

Prerequisites: MKT201 Introduction to Marketing.

MKT305 Services Marketing [3-0, 3 cr.]
The course examines the growing role of services marketing and presents the challenges frequently encountered in the marketing of intangibles such as: the inability to inventory, the difficulty to synchronize demand and supply, and the complexity of controlling the performance quality of human interactions. The course will consider marketing in industries that deal primarily in services (such as financial services, hospitality services, transportation companies, educational institutions, and professional services) but also from the perspective of every organization, as service is an essential part of the offering of every company. Topical coverage includes: key service delivery elements; service quality measurements; service recovery strategies; service blueprinting; and other key issues facing today's customer service providers.

Prerequisites: MKT201 Introduction to Marketing

MKT308 Hospitality Marketing [3-0, 3 cr.]
This course focuses on the application of marketing principles to the hospitality industry. It course uncovers the application of basic marketing concepts and research methods, and the design of marketing strategies for a hospitality business. Topical coverage includes: the unique attributes of marketing within hospitality industries; the design of an appropriate marketing mix to meet guest needs and achieve company goals; the development of marketing information systems that meet a hospitality company’s marketing information needs and the use of these sources to anticipate future developments and develop services that meet the emerging needs of guests; the design of a distribution mix of hospitality networks, as well as appropriate pricing and communication mix strategies to deliver services effectively and efficiently; the preparation of a delivery system that enhances the moments of truth that are characteristic of the hospitality provider’s daily interactions with guests.

Prerequisites: MKT201 Introduction to Marketing

MKT310 Retailing and Merchandizing [3-0, 3 cr.]
This course offers an in-depth examination of the dynamic retail industry. Retailing is the business of selling consumer goods to final consumers, and this business is continuously evolving. Retailers are particularly affected by changes in the consumer population, changes in the economic, social, technological, and political environment, and changes in competitive conditions. The course examines the main requirements of effective retail management, including: adequate financial structure, necessary physical facilities, effective policies and procedures, and competence, loyalty, and productiveness of personnel. Topical coverage also includes: planning, management, and execution of activities taking place in the selling of goods to the end consumer; product placing and development, pricing alternatives, location options, and the promotion of offerings; branding in the retail industry; international retailing; and online retailing strategy.

Prerequisites: MKT201 Introduction to Marketing.

MKT311 International Marketing [3-0, 3 cr.]
This course presents an overview of the unique aspects of marketing in the international business environment and provides the framework upon which multinational marketing management can be based. The course focuses on assessing international marketing opportunities, as well as formulating and implementing international marketing strategies covering the four areas of the marketing mix, namely: product planning, pricing, promotion and channels of distribution. Topical coverage includes: the economic, cultural, political, legal and other environmental influences on international marketing; and the importance of linking international marketing with the overall business strategy.

Prerequisites: MKT201 Introduction to Marketing.

MKT412 E-Marketing [3-0, 3 cr.]
The course offers a broad overview of e-Marketing principles and best practices. E-Marketing is the process of creating, communicating and exchanging value between different stakeholders using information technology, generally over the Internet. By adding an online presence to their existing structure, most organizations are becoming hybrid entities. The ability to think strategically

School of Business
in a fast changing E-Marketing landscape became an essential skill for every business-oriented individual given the changes brought forth by the electronic medium in the expectations of both customers and business partners. Topical coverage includes among other issues: marketing communications strategies and tactics for the World Wide Web; distribution channels; implications of e-Marketing for customer relations; online privacy, security issues and cyber law. 

Prerequisites: MKT201 Introduction to Marketing.

**MKT421 Marketing Research [3-0, 3 cr.]**

This course outlines the fundamentals of research methodology and its application to the solution of marketing problems, provides students with the analytical tools to collect, analyze, and interpret market data for marketing decisions. The course introduces the marketing research process and the various steps of problem definition, research design, questionnaire construction, sampling, qualitative and quantitative data analysis, evaluation and presentation of research findings. Topical coverage also includes principles of scientific research, techniques, methodological problems, organization, and management of marketing research.

Prerequisites: MKT201 Introduction to Marketing, QBA201 Managerial Statistics and ECO201 Microeconomics, or the consent of the department.

**MKT488 Topics in Marketing [3-0, 3 cr.]**

This is a variable content course in marketing in which students pursue subjects of current interest that are not part of the regular curriculum. Topical coverage includes among other issues: advertising and sales promotion, public relations management, guerrilla marketing, nonprofit and social marketing, brand management, entrepreneurial marketing, green marketing, franchising, and marketing in an economy of scarcity. Other topics can be developed as well. The course content reflects contemporary developments and the special interests of instructors and students, and accordingly could be taken more than once for credit when topics differ. A specific course description will be published online in the Course Schedule for the semester the course is offered.

Prerequisites: MKT201 Introduction to Marketing.

**MKT498 Marketing Strategy [3-0, 3 cr.]**

This analytical course examines marketing activities from the viewpoint of a marketing executive. It applies marketing principles, practices, and theories to the formulation of strategic marketing plans and solutions for local and global markets. Topical coverage includes: diagnosing marketing problems, identifying opportunities, analyzing alternative courses of action, and recommending sound marketing strategies and action plans. The course will allow students to recognize the factors that influence the success likelihood of their marketing decisions and thereby improve their marketing decision-making. Students will also learn how to create a comprehensive marketing plan that appropriately plots a suitable course of action.

Prerequisites: senior-level standing.

**GENERAL BUSINESS**

**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 non-linear 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.
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.

BUS213 Business Law and Ethics [3-0, 3 cr.]
This course is an introduction to the American/Lebanese legal environment. It entails the survey of the American/Lebanese judicial system, business ethics, contract laws, business organization, antitrust law and commercial agencies; all in a comparative approach.
Prerequisites: None
Equivalent: BUS203 Business Law

BUS299 Civic Engagement Course [0 cr.]
This is a mandatory zero credit (Pass/Fail basis) civic engagement course for all students in the B.S. Business Studies program. It is a guided community service experience based on a plan designed by the School in cooperation with the Outreach and Civic Engagement Department.
Prerequisites: Business Major, Good Academic Standing

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.
Prerequisites: QBA201 Managerial Statistics

QBA201 Managerial Statistics [3-0, 3 cr.]
This course covers the basic concepts in descriptive and inferential statistics relevant to managerial decision making. Topics include data analysis, probability, random variables, sampling distributions, estimation, hypothesis testing and regression. Examples and case studies are drawn from finance, marketing, and management to aid understanding of the statistical techniques and assist in their implementation. Extensive use of statistical software package tools is made for representing and analyzing data.
Equivalent: BUS210 Business Statistics

QBA301 Intermediate Business Statistics [3-0, 3 cr.]
This course addresses more advanced topics in statistics for business students.
Prerequisites: BUS210 Business Statistics.

OPM301 Operation and Production Management [3-0, 3 cr.]
This course introduces students to the concepts and quantitative methods for solving problems in manufacturing and service operations. It presents a systematic study of managerial and mathematical techniques for the production of goods and services. The course develops your knowledge of resource planning. Topics include but are not limited to: operations and supply chain management, process design, quality management, supply and demand planning, and scheduling. Student work will focus on the application of these concepts to actual business situations.
Prerequisites: QBA201 Managerial Statistics or equivalent
MINISSION
The minor in Business will provide the LAU general student community with the opportunity to combine with their primary fields of study a basic knowledge of Business.

GOAL AND OBJECTIVES
The minor in Business has the following goal and objectives:

Goal
The student will have an understanding of the basic aspects of business.

Objectives
• The student will know the fundamentals of accounting, economics, finance, marketing and management.
• The student will have the foundation to pursue an M.B.A.

REQUIREMENTS
The minor in business requires a total of 18 credits distributed as follows:

Core courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MKT201</td>
<td>Introduction to Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MGT201</td>
<td>Introduction to Management</td>
<td>3</td>
</tr>
<tr>
<td>ACC203</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ECO201 or ECO202</td>
<td>Introduction to Microeconomics or Introduction to Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>FIN301</td>
<td>Managerial Finance</td>
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</table>

Plus one upper-level course, requiring departmental approval and declaration of minor, from the following list:

<table>
<thead>
<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>MGT301</td>
<td>Organizational Behavior</td>
</tr>
<tr>
<td>MKT304</td>
<td>Consumer Behavior</td>
</tr>
<tr>
<td>FEB304</td>
<td>Family Business Management</td>
</tr>
<tr>
<td>FIN302</td>
<td>Financial Institutions and Markets</td>
</tr>
<tr>
<td>ITM301</td>
<td>Operation and Production Management</td>
</tr>
<tr>
<td>HOM304</td>
<td>Hotel Operations</td>
</tr>
</tbody>
</table>

Non-business students will no longer be allowed to register in any business course other than the named 18 credits for minor. The only exception would be those courses that are required for minor or core in non-business degrees. The additional resources needed to provide the minor in business depends on the enrollment level in the program.
Bachelor of Science (B.S.) in Economics

MISSION
The mission of the economics program is to train students to become well-rounded economists that have solid grounding in economic theory and its applications. The program prepares students for careers in the private or public sectors. The program also serves as a solid foundation for graduate school in economics and related disciplines.

GOALS AND OUTCOMES
- **Goal 1**: The graduate will possess knowledge of core economic principles, theories and quantitative tools.
  - **Outcome 1.1**: The graduate will be able to demonstrate knowledge of key economic principles and theories of the macro and micro dimensions of market economies.
  - **Outcome 1.2**: The graduate will be able to express economic relationships using graphical and mathematical tools, and to empirically examine such relationships using regression methods.
- **Goal 2**: The graduate will have the ability to use economic analysis for the solution of business and organizational problems.
  - **Outcome 2.1**: The graduate will be able to propose a solution to a business or economic problem using qualitative and quantitative reasoning.
- **Goal 3**: The graduate will have an understanding of the workings of economic policy instruments and objectives, and the linkages between the public sector and the private economy.
  - **Outcome 3.1**: The graduate will be able to apply economic theories to the design of macroeconomic and microeconomic public policies, and relate how non-economic considerations affect public policy formulations and outcomes.
- **Goal 4**: The graduate will use written and oral communication effectively.
  - **Outcome 4.1**: The graduate will be able to deliver an effective oral presentation.
  - **Outcome 4.2**: The graduate will be able to demonstrate effective written communication.

CURRICULUM
The B.S. in Economics (92 credits), a program to be included in AACSB process, is as follows:

**Business Requirements (12 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC203</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ECO340</td>
<td>Economics of Organizations and Management</td>
<td>3</td>
</tr>
<tr>
<td>FIN301</td>
<td>Managerial Finance</td>
<td>3</td>
</tr>
<tr>
<td>MKT201</td>
<td>Introduction to Marketing</td>
<td>3</td>
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</tbody>
</table>

**Quantitative Requirements (10 credits)**

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>QBA201</td>
<td>Managerial Statistics</td>
<td>3</td>
</tr>
<tr>
<td>ECO304</td>
<td>Mathematical Methods for Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECO332</td>
<td>Introductory Econometrics</td>
<td>4</td>
</tr>
</tbody>
</table>

**Economics Requirements (12 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</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>ECO305</td>
<td>Intermediate Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECO306</td>
<td>Intermediate Macroeconomics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Economics Electives (18 credits)**

3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO344</td>
<td>Economics, Ethics and Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>ECO346</td>
<td>Foundations of Political Economy</td>
<td>3</td>
</tr>
</tbody>
</table>
3 credits from:

- ECO311 Economic Development [3-0, 3 cr.]
- ECO333 Comparative Economic Systems [3-0, 3 cr.]

12 credits from:

- ECO422 Public Finance [3-0, 3 cr.]
- ECO320 Environmental, Resource and Energy Economics [3-0, 3 cr.]
- ECO420 Monetary Theory and Policy [3-0, 3 cr.]
- ECO335 International Economics [3-0, 3 cr.]
- ECO402 Special Topics in Economics [3-0, 3 cr.]
- ECO342 Labor and Human Resource Economics [3-0, 3 cr.

Liberal Arts Core Requirements (13 credits)

- ARA2-/3- Arabic Language/Literature [3-0, 3 cr.]
- CSC201 Computer Applications [3-0, 3 cr.]
- ENG202 Sophomore Rhetoric [3-0, 3 cr.]
- ENG203 Fundamentals of Oral Communication [3-0, 3 cr.]
- HLT201 Basic Health [3-0, 1 cr.]
- PED2— Physical Education [3-0, 1 cr.]
- ETH201 Moral Reasoning [3-0, 1 cr.]

Liberal Arts (LAC) Electives (21 credits) (remaining 9 credits)

- Sciences & Quantitative Reasoning [3-9 cr.]
- Social Sciences [3-9 cr.]

- Microeconomics and Macroeconomics [6 cr.]
- Philosophy, Religion, History [3-0 cr.]
- Literature [3-0 cr.]
- Arts [3-0 cr.]

Free Electives (12 credits)

COURSE DESCRIPTIONS

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.

ECO304 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.

Prerequisites: MTH105 Business Math or equivalent.

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.

ECO320 Environmental, Resource, and Energy Economics [3-0, 3 cr.]
This course introduces students to the basics of environmental and natural resource economics and the fundamentals of environmental policymaking. The first part of the course will discuss environmental pollution and policy solutions, the second part will discuss natural resource exploitation, sustainability and key issues in energy economics. The course also highlights scientific facts that shape environmental policy debates. 
Prerequisites: ECO201, ECO202, ECO305.

ECO332 Introductory Econometrics [4-0, 4 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. 
Prerequisites: STA201 Business Statistics.

ECO333 Comparative Economic Systems [3-0, 3 cr.]
This course will examine the basic principles and institutions of past and contemporary economies, with a special emphasis on capitalist, socialist and mixed economic systems. The course provides information on the methodology to be employed in making economic and social comparisons across countries and regions, by exploring differences in institutions, policy and performance. In addition to comparing capitalist and socialist systems, the course will study the contemporary experience of transition from one economic system to another. The course will also devote attention to the growing interest in the comparative analysis of institutions in capitalist societies, and to the historical evolution of these institutions. This introduces students to recent comparative research on globalisation and varieties of capitalism. 
Prerequisites: ECO201, ECO202.

ECO335 International Economics [3-0, 3 cr.]
This course deals with the principles of trade, resource allocation among nations, international monetary and exchange rate arrangements, and trade restriction problems. 
Prerequisites: ECO201 Microeconomics and ECO202 Macroeconomics.

ECO340 Economics of Organizations and Management [3-0, 3 cr.]
This course is an introduction to the economics of organizations and management. The course focuses on decision-making within a firm and strategic interactions among firms in industries. The objective is to develop the knowledge and strategies useful in making efficient business or managerial decisions both within firms and between firms in different market settings. The course will also study the application of economic models to address the effectiveness of organizations. 
Prerequisites: ECO201, ECO202.

ECO342 Labor and Human Resource Economics [3-0, 3 cr.]
This course introduces students to the economic analysis of labor markets and theories of human resources economics. The course includes topics in labor demand and supply, human capital accumulation, wage determination, inequality in earnings, unions and collective bargaining, training and human-resource development, productivity and pay, and labor discriminations. 
Prerequisites: ECO201, ECO202.

ECO344 Economics, Ethics and Philosophy [3-0, 3 cr.]
This course is an exploration of some topics at the intersection of economics, ethics and philosophy. The course will examine the ethical and philosophical foundations of normative economics, by seeking to understand the role of efficiency and equity considerations in economic behavior and policy-making. It seeks to investigate the role of ethical theories and concepts in comprehending economic life. The course will also examine questions concerning the methodology of economics, and the distinct nature of economics as a science. Some of the topics to be explored include rationality, self-interest, value, welfare, justice, optimality, models, causality and reductionism. 
Prerequisites: ECO201, ECO202.
ECO346 Foundations of Political Economy [3-o, 3 cr.]
The course will address the fundamentals of political economy: production, exchange, value, and distribution. The course mainly is an exploration of the ideas of Adam Smith, Thomas Malthus, David Ricardo, Karl Marx and John Maynard Keynes. In addition, marginalist theory will be studied within the context of evolution of economic thought. The basic ideas of Veblen, Hayek and Schumpeter will also be briefly discussed. The course will draw lessons for the understanding of modern capitalism, in relation to issues such as technological change, market competition, wealth creation, income distribution, instability, long-run capitalist development, morality and class conflict.
Prerequisites: ECO201, ECO202.

ECO402 Special Topics in Economics [3-o, 3 cr.]
This course deals with selected topics in economic theory.
Prerequisites: At least 12 credits in economics courses. This course may be repeated for credit with the instructor’s consent.

ECO420 Monetary Theory and Policy [3-o, 3 cr.]
This course covers money and the banking system’s nature and functions. It also 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.

ECO422 Public Finance and Fiscal Policy [3-o, 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.

Minor in Economics

The minor in Economics provides the LAU general student community with the opportunity to combine with their primary fields of study a breadth of knowledge in economics.

The minor is academically attractive to students in many majors such as engineering, computer science, mathematics, political science, history and pharmacy. The minor increases students’ chances of employability in many areas where these fields interact with economics.

The minor also provides ideal preparation for graduate work in economics for those coming from quantitative scientific fields (e.g. physics, math, computer science, engineering) or for graduate work in multidisciplinary fields related to undergraduate studies in different fields such as financial engineering, construction and engineering management and economics, pharmaco-economics, health economics and political economy.

The minor in economics requires a total of 18-19 credits distributed as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course 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>ECO305</td>
<td>Intermediate Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECO306</td>
<td>Intermediate Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECO304</td>
<td>Mathematical Methods for Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECO311</td>
<td>Economic Development</td>
<td>3</td>
</tr>
<tr>
<td>ECO320</td>
<td>Environmental, Resource &amp; Energy Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECO332</td>
<td>Introductory Econometrics</td>
<td>4</td>
</tr>
<tr>
<td>ECO333</td>
<td>Comparative Economic Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECO335</td>
<td>International Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECO342</td>
<td>Labor &amp; Human Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECO344</td>
<td>Economics, Ethics &amp; Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>ECO346</td>
<td>Foundations of Political Economy</td>
<td>3</td>
</tr>
<tr>
<td>ECO402</td>
<td>Special Topics in Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECO420</td>
<td>Monetary Theory and Policy</td>
<td>3</td>
</tr>
<tr>
<td>ECO422</td>
<td>Public Finance</td>
<td>3</td>
</tr>
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</table>

Plus any 6-7 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO304</td>
<td>Mathematical Methods for Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECO311</td>
<td>Economic Development</td>
<td>3</td>
</tr>
<tr>
<td>ECO320</td>
<td>Environmental, Resource &amp; Energy Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECO332</td>
<td>Introductory Econometrics</td>
<td>4</td>
</tr>
<tr>
<td>ECO333</td>
<td>Comparative Economic Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECO335</td>
<td>International Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECO342</td>
<td>Labor &amp; Human Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECO344</td>
<td>Economics, Ethics &amp; Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>ECO346</td>
<td>Foundations of Political Economy</td>
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</tr>
<tr>
<td>ECO402</td>
<td>Special Topics in Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECO420</td>
<td>Monetary Theory and Policy</td>
<td>3</td>
</tr>
<tr>
<td>ECO422</td>
<td>Public Finance</td>
<td>3</td>
</tr>
</tbody>
</table>
B.S. in Hospitality and Tourism Management

This rigorous three-year program covers all aspects of the hospitality and tourism industry. The program actively prepares students to be leaders in a global dynamic workplace. Our faculty has designed a curriculum that provides a solid foundation embedded in 25 credits of hospitality and tourism management core courses, 9 credits from broad choices in electives that invite students to explore their specific interests in hospitality and tourism management, along with 18 credits from required business courses and 6 credits of free elective courses. In order to fulfill their graduation requirements, students are expected to complete 122 credits if they join the university at the freshmen level, or 92 credits if they join the B.S. in Hospitality and Tourism Management at the sophomore level. Undergraduate students are advised to stick to the following degree plan to complete their graduation requirements in three years.

All hospitality students are required to complete 550 hours of internship. The internship could be completed at named local and international hospitality firms.

GOALS AND OUTCOMES

• **Goal 1:** The graduate will have essential knowledge of hospitality, tourism and related business disciplines.
  - **Outcome 1.1:** The graduate will demonstrate essential knowledge acquired in the field of hospitality, tourism management, and related disciplines.
  - **Outcome 1.2:** The graduate will demonstrate essential skills acquired through the use of hospitality technologies/software, materials, and equipment that closely simulate the workplace.

• **Goal 2:** The graduate will possess problem solving capabilities.
  - **Outcome 2.1:** The graduate will be able to identify and evaluate the challenges of operating a hospitality and tourism business.

• **Goal 3:** The graduate will have an awareness of social and ethical issues.
  - **Outcome 3.1:** The graduate will be able to examine the social and ethical issues involved in a hospitality and tourism industry specific case.

• **Goal 4:** The graduate will use written and oral communication effectively.
  - **Outcome 4.1:** The graduate will be able to deliver an effective oral presentation.
  - **Outcome 4.2:** The graduate will be able to demonstrate effective written communication.

PROGRAM REQUIREMENTS

The B.S. in Hospitality and Tourism Management would require a total of 61 credits distributed as follows:

- 18 credits required business courses
- 34 credits hospitality courses (25 credits core courses and 9 credits elective courses)
- 6 credits free elective courses

<table>
<thead>
<tr>
<th>Required Business Courses (18 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKT201 Introduction to Marketing</td>
</tr>
<tr>
<td>QBA201 Managerial Statistics</td>
</tr>
<tr>
<td>BUS213 Business Law &amp; Ethics</td>
</tr>
<tr>
<td>ACC203 Financial Accounting</td>
</tr>
<tr>
<td>FIN301 Managerial Finance</td>
</tr>
<tr>
<td>MGT441 Human Resources Management</td>
</tr>
<tr>
<td>*ECO201 &amp; 202</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hospitality Core Courses (34 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOM202 Hospitality and Tourism Management</td>
</tr>
<tr>
<td>HOM203 Food and Beverage Concept Development</td>
</tr>
</tbody>
</table>
### COURSE DESCRIPTIONS

**HOM202 Hospitality and Tourism Management [3 cr.]**
This course explores all aspects of the travel and tourism; lodging; foodservice; meetings, conventions expositions; leisure and recreation. Students are offered information on the array of careers available in the various segments of the hospitality industry.

*Equivalence with old program: HOM201 and/or HOM211*

**HOM203 Food and Beverage Concept Development [3 cr.]**
The students are exposed to a broad range of food and beverage concepts. Emphasis is given to the planning and operations of a Restaurant or Foodservice Operation. Areas such as menu planning and forecasting, food production systems equipment, food service and delivery systems, cost control (food & labor) and profit and loss statements are studied.

*Equivalence with old program: HOM204*

**HOM205 Lodging Management and Operations [3 cr.]**
This course is designed to provide the students with a general understanding of the dynamics of the lodging industry, and specifically the operations and management of today’s modern hotels.

*Equivalence with old program: HOM304*

**HOM215 Front Office Operations [1 cr.]**
Front Office Management offers students the opportunity to acquire necessary knowledge and skills to provide the front desk services. Emphasis is placed on the interrelated elements of front desk operations. Topics include: communications and human relations, front office operations, reservation systems and procedures, determining room availability and rates, registration procedures, cashier and billing procedures, and night audit procedures.

*Prerequisites: HOM205*
HOM217 Housekeeping Management and Operations [1 cr.]
This course covers practical and theoretical approaches with relations to housekeeping procedures. Students will acquire the following concepts: functions of room management, room inventory and assets, safe, sanitary and hygienic room environment, flow of work between department and their key sub-units.

HOM231 Wine, Spirits and Cigars [1 cr.]
This course studies the appreciation of wine, spirits and cigars. This is a course designed to teach students about the quality, origin, characteristic, vintage and all other personalities that make a good wine superior.

HOM235 Franchising in the Hospitality Industry [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.

HOM239 Business Etiquette and Protocol [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, formalitys, entertaining and entertainments, international, celebration and ceremonies and other situations.

HOM250 Food Preparation I [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.

HOM254 Baking, Pastry and Chocolate [3 cr.]
This course introduces students to baking, pastry and chocolate, with special emphasis on yeast bread, shorteners, sweetners, leaveners, cakes and batters, pastry dough, creams and mousses, glazes and frozen desserts.

HOM302 Hospitality Purchasing [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 evaluation and regulations.

HOM306 Quantity Food Production/Catering [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 Hospitality Cost Control [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.
Prerequisites: HOM203, ACC203

HOM321 Tourism Economic and Cultural Impact [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.
Prerequisites: HOM202
HOM323 System of Accounts in the Hospitality Industry [1 cr.]
This course covers financial record keeping and reporting, utilizing uniform systems of accounts for hotels, restaurants, clubs, with emphasis on payroll, statement analysis, and computer application. Prerequisites: ACC203

HOM324 Convention and Service Management [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. Prerequisites: HOM202

HOM444 Distribution Channels and Social Media [3 cr.]
This course aims at providing students with hands-on skills on Internet marketing, hospitality system and Excel, and teaching them how to work with technologies to achieve competitive advantage. Moreover, the course will allow students to conceptually survey recent information technology development, management information systems in the hospitality and tourism industry. Prerequisites: HOM202

HOM455 Hospitality Revenue Management [3 cr.]
This course gives students a thorough understanding of the revenue management process and distribution channels. The course addresses the proper use and importance of revenue management in hospitality operations and describes the wide range of variables that must be considered in order to use revenue management effectively. Prerequisites: ACC 203, FIN 301, HOM202

HOM477 Hospitality Strategic Management [3 cr.]
The students will learn to develop a value-adding perspective to the process of strategic management. Students will evaluate the strategy of a hospitality and tourism business through its competitive methods, environmental analysis, resource allocation, core competencies and strategic investments. Prerequisites: senior standing

HOM488 Seminar in Hospitality and Tourism [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 [0 cr.] [pass or fail]
This course is a supervised work-study program in a hotel. Students must enroll in this course in the summer of their junior year, for 15 hours a week, over a period of eight weeks. Students are expected to interview for positions in facilities, approved by an internship director. Prerequisites: HOM202, HOM203, HOM205, HOM217, junior standing
MINION

The minor in Hospitality and Tourism Management provides LAU students with the opportunity to capitalize on business education as a starting point for career in Hospitality and Tourism Management.

PROGRAM OBJECTIVES

1. Students will recognize the scope of the travel and tourism industry and its economic and cultural impact on local, national, and international markets.
2. Increase the chances of student employability in many areas where their primary fields interact with Hospitality and Tourism in the employment spheres.
3. Prepare students for graduate work in hotels, restaurants, theme parks, food processing and travel and tourism-related industries.

CURRICULUM

The minor in hospitality and tourism management requires a total of 18 credits distributed as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOM202 or MGT 201</td>
<td>Hospitality and Tourism Management or Introduction to Management</td>
<td>3</td>
</tr>
<tr>
<td>HOM203</td>
<td>Food and Beverage Concept Development</td>
<td>3</td>
</tr>
<tr>
<td>HOM205</td>
<td>Lodging Management and Operations</td>
<td>3</td>
</tr>
<tr>
<td>HOM321</td>
<td>Tourism Economic and Cultural Impact</td>
<td>3</td>
</tr>
<tr>
<td>HOM217</td>
<td>Housekeeping Management and Operations</td>
<td>1</td>
</tr>
<tr>
<td>HOM231</td>
<td>Wine, Spirits and Cigars</td>
<td>1</td>
</tr>
<tr>
<td>HOM239</td>
<td>Business Etiquette and Protocol</td>
<td>1</td>
</tr>
<tr>
<td>HOM250</td>
<td>Food Preparation I</td>
<td>3</td>
</tr>
</tbody>
</table>
Graduate Programs

The graduate programs are: Master of Business Administration (M.B.A.) and Executive Master of Business Administration (E.M.B.A.). The academic rules and regulations of graduate studies are found in a previous section of this catalog.

Master of Business Administration (M.B.A.)

In support of the School of Business mission the M.B.A. program provides students with high quality education that managers seek to be able to solve complex problems in their organizations in a global business environment. The M.B.A. program graduates business professionals with solid analytical, communication and leadership skills in an ethical framework. The program is developed to expose students to all functional areas in business such as management, finance, accounting, economics, statistics, MIS and marketing covered in six core courses and seven elective courses.

Since 1981, LAU has prepared men and women for key roles in managerial and professional positions in business and public organizations. In offering the 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 from business or non-business background. Thus, the curriculum has been adapted to meet their diverse 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.

M.B.A. Students must complete a total of 39 credits (21 credits for the core and 18 credits for the elective and research requirements). Students with non-business background are required to take remedial courses as decided by the school.

GOALS AND OUTCOMES

- **Goal 1**: The graduate will utilize appropriate techniques to effectively solve business problems.
  - **Outcome 1.1**: The graduate will be able to select and analyze relevant data and propose an optimal solution to a business problem.

- **Goal 2**: The graduate will be an effective team player.
  - **Outcome 2.1**: The graduate will be able to demonstrate effective involvement in a team and will be able to perform self and peer assessment.

- **Goal 3**: The graduate will possess an understanding of the ethical and social dimensions of decision making process.
  - **Outcome 3.1**: The graduate will be able to evaluate the social and ethical issues involved in a business case.

- **Goal 4**: The graduate will possess professional communication skills.
  - **Outcome 4.1**: The graduate will be able to demonstrate effective written communication skills.
  - **Outcome 4.2**: The graduate will be able to demonstrate effective oral communication skills.
ADMISSION

Applicants to the M.B.A. program are expected to have sound academic background. Prospective students must have completed a bachelor’s degree in business studies or an equivalent from a recognized university. Admission is granted on a selective and competitive basis to students who have demonstrated distinct academic ability and motivation by meeting at least the minimum requirements described below.

In addition to a satisfactory proof of English language proficiency as per LAU rules and regulations, applicants to the M.B.A. program are expected to meet the following admissions requirements:

- A 3.0 GPA on a scale of 4.0, or its equivalent;
- GMAT or GRE test scores (taken within the past five years prior to joining the M.B.A.);
- Letters of recommendation;
- Interview, if required.

Meeting these requirements, however, does not guarantee admission to the program. Although work experience is not a prerequisite for admission, the Graduate Admissions Committee considers applicants’ professional experience as an asset and welcomes the real world business experience that such students bring to the classroom. As such, “relevant work experience” is viewed favorably when studying an applicant’s file.

The School Graduate Admission Council (SGAC) calculates a Composite Index (CI) of both the GPA and GMAT. Admission is considered only if the applicant meets the CI minimum requirement. At the discretion of the School Graduate Admission Council, applicants who are short of meeting the 3.0 GPA and/or the 500 GMAT score might be considered for “probationary” admission provided they have “significant relevant work experience,” but have met the CI minimum requirement. Students admitted on probation will earn regular status upon the completion of 12 graduate credits with at least 3.0 in each course.

Qualified applicants with a B.A./B.S. in areas of study other than Business will be required to complete remedial courses as a prerequisite for core courses.

To be considered to the M.B.A. program at LAU, applicants must submit the following:

1. A completed application form.
2. Official transcript(s) from the undergraduate degree program(s) completed. Transcripts need to be sent directly to the Admissions Office. Failure to declare enrollment at other institutions could result in an invalidation of admission, and any credits or degrees earned.
3. Certified copies of all educational or professional degrees/certificates that the applicant has earned.
4. Recommendations from two professors who are familiar with the applicant’s academic performance.
5. A certificate of current and/or previous employment if it applies.
6. Official scores on the Test of English as a Foreign Language (TOEFL), or the English Entrance Exam (EEE) administered by LAU. Students may submit a minimum score of 90 on the Internet-based international TOEFL in lieu of taking the EEE. To register for the internet-based TOEFL, visit www.ets.org/toefl/ibt/about. **Note:** Applicants taking the TOEFL should sit for the international test. Institutional TOEFL is not accepted at LAU. The code for LAU is 2595.
7. Official score on the Graduate Management Admission Test (GMAT). To register for the GMAT, please visit www.mba.com. The code for LAU is 0954. Note: If you need help studying for the GMAT, contact the Continuing Education Program, which offers preparatory courses. Other programs may also be available in your area.
8. A photocopy of the Identity Card or Passport (should be the same as the nationality used in the registration process).
9. One recent passport-size colored photograph.
10. An interview, if required.
11. A non-refundable fee of $50 (LL 75,000) payable to LAU either in cash or by a check drawn on a Lebanese or US bank.
# CURRICULUM

## M.B.A. Core Requirements (21 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC821</td>
<td>Financial Accounting</td>
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</tr>
<tr>
<td>ECO811</td>
<td>Business Economics</td>
<td>3</td>
</tr>
<tr>
<td>FIN861</td>
<td>Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>MGT831</td>
<td>Management Theory</td>
<td>3</td>
</tr>
<tr>
<td>MGT851</td>
<td>Leadership, Ethics and Team Management</td>
<td>3</td>
</tr>
<tr>
<td>MGT841</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>QBA851</td>
<td>Quantitative Methods in Business</td>
<td>3</td>
</tr>
</tbody>
</table>

Students can choose to pursue one of the following remaining options for graduation:
- Take Six courses from the following list.
- Take Five courses from the following list and BUS898 Project in Business.
- Take four courses from the following list and BUS899 Thesis in Business.

## M.B.A. Electives (18 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC822</td>
<td>Management Accounting</td>
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</tr>
<tr>
<td>ACC830</td>
<td>Financial Statement Analysis</td>
<td>3</td>
</tr>
<tr>
<td>BUS898</td>
<td>Project in Business</td>
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</tr>
<tr>
<td>BUS899</td>
<td>Thesis in Business</td>
<td>3</td>
</tr>
<tr>
<td>FIN835</td>
<td>Commercial Bank Management</td>
<td>3</td>
</tr>
<tr>
<td>FIN836</td>
<td>Modern Portfolio Management</td>
<td>3</td>
</tr>
<tr>
<td>FIN837</td>
<td>International Business</td>
<td>3</td>
</tr>
<tr>
<td>FIN863</td>
<td>Financial Derivatives</td>
<td>3</td>
</tr>
<tr>
<td>ITM832</td>
<td>Management Systems</td>
<td>3</td>
</tr>
<tr>
<td>MGT833</td>
<td>Personnel Management &amp; HRD</td>
<td>3</td>
</tr>
<tr>
<td>MGT834</td>
<td>Project Planning and Management</td>
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<tr>
<td>MGT839</td>
<td>Organizational Behavior</td>
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<tr>
<td>MGT872</td>
<td>Business Policy and Planning</td>
<td>3</td>
</tr>
<tr>
<td>MGT874</td>
<td>Trends Management</td>
<td>3</td>
</tr>
</tbody>
</table>

## COURSE DESCRIPTIONS

### ACC821 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.

### ACC822 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.

### ACC830 Financial Statement Analysis [3-0, 3 cr.]
This course deals with the analysis of the financial statements of a corporation from a user’s perspective. The course stresses the use of tools, procedures, and techniques of financial statement analysis as they relate to firm performance. Topics include ratio analysis, cash flow analysis, and financial forecasting.

### BUS898 Research Topic in Business [3-0, 3 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.

**ECO811 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.

**FIN835 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.

**FIN836 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.

**FIN837 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.

**FIN861 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.

**FIN863 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.

**ITM832 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.

**MGT831 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.

**MGT833 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.

**MGT834 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.

MGT839 Organizational Behavior [3-0, 3 cr.]
This course explores human behavior at the individual, group and organization-level. Issues of leadership and management, conflict resolution, communications, decision-making power and political behavior, and stress and organizational change will be introduced.

MGT851 Leadership, Ethics and Team Management [3-0, 3 cr.]
This course is intended to explain how to be a successful ethical leader, covering the challenges of leadership, requiring realignment of values, developing skills which inspire others to follow, and to act. It details the key skills required to lead a team or those required to work within one team. The main subject areas which will be addressed are team building, team management, and the individual’s roles within the team, communication and problem solving.

MGT872 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.

MGT874 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.

MGT875 Business Strategy & Innovation Management [3-0, 3 cr.]
This course builds a foundation in business strategy and frameworks in planning and execution. It emphasizes innovation as a source of sustainable competitive advantage, and equips the graduate student with the theory and application of strategy, industry analysis, and operational maneuvers, to meet strategic objectives. Students go through case analysis of real-life situations drawn from different parts of the world.

MKT840 Marketing Research Analysis
This course aims at highlighting the importance of marketing research when designing marketing strategies and policies. Students will learn how to gather, analyze and present information that solves common marketing problems. Topics include: tools for assessing information requirements, principles of qualitative, experimental and quantitative research designs, secondary and syndicated data sources, interviews and focus groups design, survey development, sampling methods, data collection planning, quality assessment, and analysis, interpretation/presentation of findings, online research and web surveys.
Pre-requisite: MKT841 Marketing Management

MKT841 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.

MKT842 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.

QBA851 Quantitative Methods in Business [3-0, 3 cr.]
This course is an introduction to the application of mathematical techniques in business decision-making, emphasizing practical usage in management situations. Topics include linear programming, transportation problems, network planning, queuing theory, regression analysis, and modeling techniques.
Executive Master of Business Administration (E.M.B.A.)

The Executive M.B.A. program was the first to be offered in Lebanon and the Middle East. It started in February 2000. Since then dozens of executives graduated from the program and hold top management positions at several institutions.

The Executive M.B.A. program at LAU allows professionals to earn top executive training and education while holding senior positions at their respective organizations.

The program is developed to enhance students’ managerial as well as leadership skills. The program offers courses and seminars in all areas of business at flexible times to suit students’ busy life style. All courses are offered during the weekend.

The program is very rich in its diversity of the student body. Executive M.B.A. students join the program with different backgrounds. They hold degrees in engineering, pharmacy, law, business, and other areas. This diversity will cultivate students’ exposure and allow them to share their experience with their colleagues.

Joining the Executive M.B.A. at LAU will give you the privilege of enrolling in a rewarding endeavour. You will be taught and trained by a team of highly experienced faculty and professionals with a significant experience. The faculty will teach and expose you to the latest theoretical and practical managerial techniques to be applied on the job managerial situations.

GOALS AND OUTCOMES

- **Goal 1:** The graduate will utilize appropriate techniques to effectively solve business problems.
  - **Outcome 1.1** The graduate will be able to select and analyze relevant data and propose an optimal solution to a business problem.

- **Goal 2:** The graduate will possess enhanced leadership capabilities
  - **Outcome 2.1** The graduate will demonstrate effective leadership skills

- **Goal 3:** The graduate will possess an understanding of the ethical and social dimensions of decision making process.
  - **Outcome 3.1** The graduate will be able to evaluate the social and ethical issues involved in a business case.

- **Goal 4:** The graduate will possess professional communication skills.
  - **Outcome 4.1** The graduate will be able to demonstrate effective written communication skills.
  - **Outcome 4.2** The graduate will be able to demonstrate effective oral communication skills.

ADMISSION REQUIREMENTS

The applicant is expected to have:

- A minimum GPA of 2.5/4 or its equivalent;
- Minimum GMAT score will be required for students with GPA of less than 2.5 (or its equivalent);
- The applicant should have a minimum of six years of working experience after earning B.A./B.S. or equivalent with a middle management or higher supervisory position;
- Proficiency in English. Applicants from non-English Universities have to demonstrate proficiency in English through:
  - A university-administered EEE exam (minimum score of 550)
  - A paper-based TOEFL (minimum score of 575)
  - An international-based TOEFL (minimum score of 90)
  - A computer-based TOEFL (minimum score of 233)
- All applicants will be interviewed for assessment by the admissions committee.
Meeting the conditions above does not automatically earn admission. The admissions committee has the final decision.

Up to 6 credits of non-remedial courses may be transferred from another graduate program. The transferred courses must be equivalent to existing E.M.B.A. courses and subject to approval of the graduate committee.

**PROGRAM & COURSE DESIGN**

The Executive M.B.A. is designed to sharpen the leadership skills of professionals. The E.M.B.A. program consists of 36 credits.

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.

**Core Courses (12 courses, 18 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ACC711</td>
<td>Accounting for Executives</td>
<td>1.5</td>
</tr>
<tr>
<td>ECO710</td>
<td>Applied Economics for Executives</td>
<td>1.5</td>
</tr>
<tr>
<td>FIN712</td>
<td>Executive Business Finance</td>
<td>1.5</td>
</tr>
<tr>
<td>FIN721</td>
<td>Corporate Financial Strategy</td>
<td>1.5</td>
</tr>
<tr>
<td>HRM754</td>
<td>Global Human Resource Management</td>
<td>1.5</td>
</tr>
<tr>
<td>MGT711</td>
<td>Strategic Management</td>
<td>1.5</td>
</tr>
<tr>
<td>MGT727</td>
<td>Managerial Negotiations</td>
<td>1.5</td>
</tr>
<tr>
<td>MGT734</td>
<td>Business Legal Environment, Ethics and Social Responsibility</td>
<td>1.5</td>
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<tr>
<td>MGT751</td>
<td>Executive Leadership &amp; Communication Skills</td>
<td>1.5</td>
</tr>
<tr>
<td>MKT711</td>
<td>Marketing Management for Executives</td>
<td>1.5</td>
</tr>
<tr>
<td>MKT735</td>
<td>Marketing Communications</td>
<td>1.5</td>
</tr>
<tr>
<td>QBA730</td>
<td>Business Analytics for Executives</td>
<td>1.5</td>
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</tbody>
</table>

**Elective Courses**

Students may choose any 12 courses (18 credits) from the following list of the 25 courses.

**Accounting**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ACC741</td>
<td>Financial Analysis</td>
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</tr>
<tr>
<td>ACC781</td>
<td>Selected Topics in Accounting</td>
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</tr>
</tbody>
</table>

**Economics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO716</td>
<td>Monetary Theory and Policy</td>
<td></td>
</tr>
<tr>
<td>ECO717</td>
<td>Fiscal Theory and Policy</td>
<td></td>
</tr>
<tr>
<td>ECO726</td>
<td>Econometrics and Forecasting</td>
<td></td>
</tr>
<tr>
<td>ECO781</td>
<td>Selected Topics in Economics</td>
<td></td>
</tr>
</tbody>
</table>

**Finance**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIN723</td>
<td>Bank Capital Management</td>
<td></td>
</tr>
<tr>
<td>FIN724</td>
<td>Bank Liquidity and Credit Management</td>
<td></td>
</tr>
<tr>
<td>FIN740</td>
<td>Investment Analysis</td>
<td></td>
</tr>
<tr>
<td>FIN747</td>
<td>Financial Risk Management</td>
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</tr>
<tr>
<td>FIN781</td>
<td>Selected Topics in Finance</td>
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</tbody>
</table>

**Hospitality & Tourism**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>HOM741</td>
<td>Issues in Hospitality and Tourism</td>
<td>3</td>
</tr>
<tr>
<td>HOM781</td>
<td>Selected Topics in Hospitality and Tourism</td>
<td></td>
</tr>
</tbody>
</table>

**ITM**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITM711</td>
<td>ITM for Executives</td>
<td>1.5</td>
</tr>
<tr>
<td>ITM781</td>
<td>Selected Topics in ITM</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**Management**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGT718</td>
<td>Executive Organizational Behavior</td>
<td>1.5</td>
</tr>
<tr>
<td>MGT720</td>
<td>Global Management</td>
<td>1.5</td>
</tr>
<tr>
<td>MGT721</td>
<td>Corporate Governance</td>
<td>1.5</td>
</tr>
<tr>
<td>MGT731</td>
<td>Leading Organizational Change</td>
<td>1.5</td>
</tr>
<tr>
<td>MGT756</td>
<td>Project Management and Planning</td>
<td>1.5</td>
</tr>
<tr>
<td>MGT777</td>
<td>Leadership Boot Camp</td>
<td>1.5</td>
</tr>
<tr>
<td>MGT781</td>
<td>Selected Topics in Management</td>
<td>1.5</td>
</tr>
</tbody>
</table>
COURSE DESCRIPTIONS

**ACC711 Accounting for Executives [1.5 credits]**
This course deals with financial statements as aid for decision-making, covers the accounting information the manager needs for planning, evaluation and control to maximize profitability. Topics include interpretation and uses of information contained in financial statements from a user’s perspective, accounting for liabilities and corporations' stockholders' equities, activity-based costing, cost allocation and job and process costing.

**ACC741 Financial Analysis [1.5 credits]**
This course deals with the analysis of the financial statements of a corporation from a user's perspective. Topics include ratio analysis, cash flow analysis, and financial forecasting.
Prerequisites: Accounting for Executives [1.5 credits]

**ACC781 Selected Topics in Accounting [1.5 credits]**
This course discusses contemporary issues in Accounting.
Prerequisites: Accounting for Executives [1.5 credits]

**ECO710 Applied Economics for Executives [1.5 credits]**
This course equips executives and professionals with the economic tools needed for business decision making. It provides an overview of macroeconomic and microeconomic fundamentals. Topics include the determination of national income, economic fluctuations and economic growth. The course covers also market structures and strategic positioning of firms.

**ECO716 Monetary Theory and Policy [1.5 credits]**
The objective of this course is to provide an overview of how monetary policy interacts with financial markets. It covers the basic functioning of monetary policies in stabilizing economic activities. Topics include the role of central banks in managing and controlling monetary aggregates.
Prerequisites: ECO710[1.5 credits]

**ECO717 Fiscal Theory and Policy [1.5 credits]**
The objective of this course is to provide an overview of how fiscal policy interacts with the aggregate economy. It covers the basic functioning of fiscal policy in stabilizing economic activities. Topics include the different methods of financing government expenditures and the study of the economic basis for, and the impact of, government activity.
Prerequisites: ECO710[1.5 credits]

**ECO726 Econometrics and Forecasting [1.5 credits]**
This course introduces students to the methodology and applications of econometrics and forecasting techniques. 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.
Prerequisites: QBA730 [1.5 credits]

**ECO781 Selected Topics in Economics [1.5 credits]**
This course discusses contemporary issues in Economics.
Prerequisites: ECO710[1.5 credits]

**FIN712 Executive Business Finance [1.5 credits]**
This course covers in-depth the main tools an executive use to make financial decisions. Topics include time value of money, capital budgeting, the valuation of stocks and bonds, risk and expected return.
FIN721 Corporate Financial Strategy [1.5 credits]
This course deals with corporate financial decisions. Topics include capital structure, cost of capital, dividend and stock repurchase policy.
Prerequisites: ACC711 Accounting for Executives [1.5 credits]

FIN723 Bank Capital Management [1.5 credits]
This course deals with the management of bank capital. Topics include bank capital requirements, Basle Accords, and interest rate risk management.
Prerequisites: ACC711 Accounting for Executives [1.5 credits]

FIN724 Bank Liquidity and Credit Management [1.5 credits]
This course deals with bank liquidity problems and solutions. It also discusses credit analysis by addressing short and long-term loans to business firms, financial ratio analysis of a customer’s financial statements, and business loan applications.
Prerequisites: ACC711 Accounting for Executives [1.5 credits]

FIN740 Investment Analysis [1.5 credits]
This course deals with various investment instruments existing in the financial markets, security selection and wealth allocation. It discusses the concepts of risk, return, diversification, and optimal portfolio selection. The course also discusses different investment strategies and performance evaluation models.
Prerequisites: FIN712 Executive Business Finance

FIN747 Financial Risk Management [1.5 credits]
This course deals with options, futures, and forward contracts and markets. It also covers the mechanics of using options, futures and forward contracts in hedging investment portfolios.
Prerequisites: FIN712 Executive Business Finance

FIN781 Selected Topics in Finance [1.5 credits]
This course discusses contemporary issues in Finance.
Prerequisites: FIN712 Executive Business Finance

HOM741 Issues in Hospitality and Tourism [1.5 credits]
This course deals with issues encountered by tourism and hospitality professionals. Topics include differentiation between international and domestic tourists, forecasting and predicting growth and change.

HOM781 Selected Topics in Hospitality and Tourism [1.5 credits]
This course discusses contemporary issues in Hospitality and Tourism.

HRM754 Global Human Resource Management [1.5 credits]
This course deals with human capital as the key to success in any organization. Topics include the influence of changing technologies, corporate policies, and international competitive requirements on the decisions related to staffing, compensation, motivation and job satisfaction, employee relations, and human-resource development.

ITM711 ITM for Executives [1.5 credits]
This course discusses the use of Information Technology in Business decision making. Topics include (a) Use of Information Technology as a "Decision Support System" to enhance aspects of decision making in a given situation and (b) Use of Information Technology to explore and practice methodologies in "Data Analysis and Management".

ITM781 Selected Topics in ITM [1.5 credits]
This course discusses contemporary issues in ITM.

MGT711 Strategic Management [1.5 credits]
The course exposes students to in-depth knowledge of strategic planning and strategy formulations. The course provides students with tools to manage and implement dynamic and evolving business strategies. It exposes students to various strategic management theories and analytical skills to drive efficiency and effectiveness into an organization’s core processes.

MGT718 Executive Organizational Behavior [1.5 credits]
This course discusses the interpersonal skills and management of small groups and teams required for organizational effectiveness. Topics include interpersonal
effectiveness, decision making and problem solving, effective group processes, and motivation of key employees.

**MGT720 Global Management [1.5 credits]**
This course explores the dynamic global environment of business management by exploring the political, legal, technological, competitive, and cultural factors that shape corporations worldwide. It will discuss various issues facing international business managers today around the globe.

**MGT721 Corporate Governance [1.5 credits]**
This course deals with the duties and responsibilities of board membership. Topics include how corporate governance operates in today’s challenging global business environment.

**MGT727 Managerial Negotiations [1.5 credits]**
This course deals with the skills a manager needs for carrying out negotiations at the internal level with employees and the external level with customers.

**MGT731 Leading Organizational Change [1.5 credits]**
This course focuses on the challenges leaders are facing during organizational changes and the skills needed to facilitate these changes. Topics include the key tasks of leading the strategic change process in organizations.

**MGT734 Business Legal Environment, Ethics and Social Responsibility [1.5 credits]**
This course deals with the Lebanese laws governing businesses and how these laws affect business strategy and decision making. It also covers the social responsibility of corporations. In addition, students also examine the ethical implications of business decisions.

**MGT751 Executive Leadership & Communication Skills [1.5 credits]**
This course focuses on leader’s skills and the difference between managers and leaders. Topics include communication skills a leader needs to influence others. Topics also include leader styles, traits, power, motivation and credibility.

**MGT756 Project Management and Planning [1.5 credits]**
This course involves the selection of projects, their initiation, implementation, control and termination.

**MGT777 Leadership Boot Camp [1.5 credit]**
This workshop is designed to upgrade leadership skills of students to an advanced level. This advanced level entails less reliance on technical skills and more dependence on conceptual and interrelationship skills. The workshop allows students to exercise their leadership skills through real application that reinforces their ability to engage and motivate others into accomplishing particular tasks. The workshop will also assist students to transit from followers to leaders in organizations.

**MGT781 Selected Topics in Management [1.5 credits]**
This course discusses contemporary issues in Management.  
Prerequisites: MGT711 Strategic Management

**MKT711 Marketing Management for Executives [1.5 credits]**
This course exposes students to various elements of the marketing mix including product pricing, promotion and distribution decisions. In addition, the course discusses the factors influencing marketing decision-making and marketing strategies.

**MKT714 Advanced Consumer Behavior [1.5 credits]**
This course discusses the value of consumer behavior and a number of conceptual models explaining consumers’ motivations, decision-making and consumptions. The course explores models from psychology, sociology and provides new tools and examples of how the insights developed from these models have been utilized to build successful brands and shape consumer behavior.
MKT725 Strategic Marketing Research [1.5 credits]
This course deals with marketing research when designing marketing strategies and policies. Topics include techniques of data collection, evaluation of alternative sources of information, and methods of evaluating data and presenting the results.
Prerequisites: QBA 730 Business Analytics for Executives

MKT731 Advertising Strategy [1.5 credits]
This course deals with the development, evaluation and management of an advertising strategy. Topics include the structure of an advertising campaign, targeting and positioning, media analysis and creative strategy implementation.

MKT735 Marketing Communications [1.5 credits]
This course deals with planning marketing and promotional programs, and coordinating the various communication functions. Topics include communication theory, ethics in marketing communications, the formulation and analysis of marketing communication strategies, and the role of marketing communication in branding and corporate reputation.

MKT781 Selected Topics in Marketing [1.5 credits]
This course discusses contemporary issues in Marketing.

OPM711 Executive Operations Management [1.5 credits]
This course focuses on how the firm efficiently produces and distributes its goods and services. Topics include operations as a managerial integration function which provides frameworks and tools to target and implement improvements in business processes.

QBA730 Business Analytics for Executives [1.5 credits]
This course covers the statistical techniques and concepts that a manager uses in making decisions. Topics include problem formulation, sampling techniques, data collection and analysis; statistical inference, including estimation and sample size determination; and regression and correlation analysis.
<table>
<thead>
<tr>
<th>Page</th>
<th>Department</th>
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<tbody>
<tr>
<td>310</td>
<td>Department of Civil Engineering</td>
</tr>
<tr>
<td>311</td>
<td>Bachelor of Engineering (B.E.) in Civil Engineering</td>
</tr>
<tr>
<td>320</td>
<td>Minor in Environmental Science</td>
</tr>
<tr>
<td>322</td>
<td>Master of Science (M.S.) in Civil and Environmental Engineering</td>
</tr>
<tr>
<td>329</td>
<td><strong>Department of Electrical &amp; Computer Engineering</strong></td>
</tr>
<tr>
<td>330</td>
<td>Bachelor of Engineering (B.E.) in Computer Engineering</td>
</tr>
<tr>
<td>336</td>
<td>Bachelor of Engineering (B.E.) in Electrical Engineering</td>
</tr>
<tr>
<td>343</td>
<td>Master of Science (M.S.) in Computer Engineering</td>
</tr>
<tr>
<td>350</td>
<td><strong>Department of Industrial &amp; Mechanical Engineering</strong></td>
</tr>
<tr>
<td>351</td>
<td>Bachelor of Engineering (B.E.) in Industrial Engineering</td>
</tr>
<tr>
<td>359</td>
<td>Bachelor of Engineering (B.E.) in Mechanical Engineering</td>
</tr>
<tr>
<td>366</td>
<td>Packaging Minor (PM)</td>
</tr>
<tr>
<td>369</td>
<td>Master of Science (M.S.) in Industrial Engineering and Engineering Management</td>
</tr>
</tbody>
</table>
The School of Engineering at the Lebanese American University promotes five important core values:

1. 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;
2. Commitment: To be committed to our students and to our school, and to conscientiously strive for excellence in our work;
3. 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;
4. Respect: To value one’s self and others and to respect the rights and dignity of others;
5. Courage: To face difficult situations with confidence and determination, and to promote intellectual freedom and stand up for one’s convictions.

PROGRAMS/DEGREES AVAILABLE

The School of Engineering offers Bachelor of Engineering (B.E.) degrees in:

- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Industrial Engineering
- Mechanical Engineering

Minors in: Packaging, Environmental Sciences

The School of Engineering offers Master of Science (M.S.) degrees in:

- Civil and Environmental Engineering
- Computer Engineering
- Industrial Engineering and Engineering Management

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.

DEAN
George E. Nasr, Ph.D.

ASSOCIATE DEAN
Samer Saab, Ph.D.

ASSISTANT DEAN
Barbar Akle, Ph.D.

CHAIRS
Jean Chatila, Ph.D.
Michel Khoury, Ph.D.
Zahi Nakad, Ph.D.

FACULTY
Grace Abou Jaoude, Ph.D.
Chadi Abou-Rjeily, Ph.D.
Caesar Abi Shdid, Ph.D.
Barbar Akle, Ph.D.
Ihab Ali, 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.
Marc Haddad, Ph.D.
Ramy Harik, Ph.D.
Camille Issa, Ph.D.
Jimmy Issa, Ph.D.
Gebran Karam, Ph.D.
John Khoury, Ph.D.
Michel Khoury, Ph.D.
Charbel Mansour, 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.
Dani Tannir, Ph.D.
Joe Tekli, Ph.D.
Mahmoud Wazne, Ph.D.
Pierrette Zouein, Ph.D.
VISION
To advance a distinctive and innovative environment for engineering education.

ACCREDITATION
The Bachelor of Engineering degree programs listed above are accredited by the Engineering Accreditation Commission of ABET, the recognized accreditor of college and university programs in applied science, computing, engineering, and engineering technology. ABET accreditation demonstrates a program’s commitment to providing its students with a quality education.

Accreditation is a voluntary, peer-review process that requires programs to undergo comprehensive, periodic evaluations. The evaluations, conducted by teams of volunteer professionals working in industry, government, academia, and private practice within the ABET disciplines, focus on program curricula, faculty, facilities, institutional support, and other important areas.

One of the key elements of ABET accreditation is the requirement that programs continuously improve the quality of education provided. As part of this continuous improvement requirement, programs set specific, measurable goals for their students and graduates, assess their success at reaching those goals, and improve their programs based on the results of their assessment.

In addition to providing colleges and universities a structured mechanism to assess, evaluate, and improve their programs, accreditation also helps students and their parents choose quality college programs, enables employers and graduate schools to recruit graduates they know are well-prepared, and assists registration, licensure, and certification boards in screening applicants.

ABET is a not-for-profit organization, owned and operated by its more than 30 professional and technical member societies. An internationally respected organization with more than 2,000 volunteers, ABET has set the higher educational standards in its fields for nearly 80 years. More information about ABET, its member societies, and the evaluation criteria used to accredit programs can be found at www.abet.org.

The Bachelor of Engineering degree program in Civil Engineering is accredited by the Engineering Accreditation Commission of ABET (www.abet.org).

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.

DEGREES AVAILABLE:
- Bachelor of Engineering (B.E.) in Civil Engineering
- Master of Science (M.S.) in Civil and Environmental Engineering
Bachelor of Engineering (B.E.) in Civil Engineering

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

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.

VISION
To 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.

GOALS OF CURRICULUM

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.

Student Outcomes
The students will acquire in their matriculation through the program, the following skills, knowledge, and behaviors:

1. An ability to apply knowledge of mathematics, science, and engineering;
2. An ability to design and conduct experiments, as well as to analyze and interpret data;
3. 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;
4. An ability to function on multidisciplinary teams;
5. An ability to identify, to formulate, and to solve engineering problems;
6. An understanding of one’s professional and ethical responsibility;
7. An ability to communicate effectively;
8. A broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and social context;
9. A Recognition of the need and the ability to engage in lifelong learning;
10. A Knowledge of contemporary issues;
11. An ability to use the techniques, the skills, and the modern engineering tools that are necessary for the engineering practice.

**GRADUATION REQUIREMENTS**

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 hereafter. Students may elect to take these courses over a longer period of time.

**STUDY PLAN**

This is a recommended plan of study over a four-year period.

**YEAR I (40 CREDITS)**

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<tr>
<th>Fall Semester (17 credits)</th>
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<tr>
<td>MTH201</td>
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<td>ENG202</td>
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<th>Spring Semester (17 credits)</th>
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<th>Summer Module II (3 credits)</th>
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<tr>
<td>LAC Elective</td>
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**YEAR II (42 CREDITS)**

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<tr>
<th>Fall Semester (15 credits)</th>
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<tr>
<td>CIE308</td>
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<tr>
<th>Spring Semester (15 credits)</th>
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<tr>
<td>CIE306</td>
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<td>CIE305</td>
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<tr>
<td>CIE361</td>
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<td>CIE362</td>
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</tbody>
</table>
### Summer Module I (6 credits)
- **GNE 331** Probability and Statistics 3
- **GNE 301** Professional Communication 2
- **PED2** Physical Education 1

### Summer Module II (6 credits)
- **——** LAC Elective 3
- **INE320** Engineering Economy I 3

### YEAR III (37 CREDITS)
#### Fall Semester (16 credits)
- **CIE444** Soil Mechanics 3
- **CIE445** Soil Mechanics – LAB 1
- **CIE424** Water Distribution & Treatment 3
- **CIE425** Environmental Engineering –LAB 1
- **CIE460** Highway Engineering 3
- **CIE461** Transportation Engineering –SOFT 1
- **CIE480** Civil Eng. Management Fundamentals 3
- **GNE305** Professional Ethics 1

#### Spring Semester (15 credits)
- **CIE426** Wastewater Collection & Treatment 3
- **CIE427** Environmental Engineering – SOFT 1
- **CIE446** Foundation Engineering 3
- **CIE447** Geotechnical Engineering – SOFT 1
- **CIE465** Transportation Systems Engineering 3
- **CIE485** Construction Management 3
- **CIE486** Construction Management – SOFT 1

### Summer Module I (6 credits)
- **CIE498** Professional Experience 6

### YEAR IV (31 CREDITS)
#### Fall Semester (16 credits)
- **CIE601** Project I 3
- **CIE436** Detailing for Civil Engineers 2
- **CIE434** The Civil Engineering Profession 2
- **CIE——** Technical Elective 3
- **CIE——** Technical Elective 3
- **CIE——** Technical Elective 3

#### Spring Semester (15 credits)
- **CIE400** Steel Structures 3
- **CIE——** Technical Elective 3
- **CIE——** Technical Elective 3
- **CIE——** Technical Elective 3
- **——** LAC Elective 3

#### TECHNICAL ELECTIVES
- **CIE510** Finite Element Method I 3
- **CIE512** Concrete Structures II 3
- **CIE520** Solid Waste Management 3
- **CIE521** Hydrology 3
- **CIE522** Environmental Impact Assessment 3
- **CIE525** Environmental Policy and Management 3
- **CIE526** Environmental Remediation 3
- **CIE563** Transportation Planning and Land Use 3
- **CIE564** Mass Transit Systems 3
- **CIE582** Infrastructure Management 3
- **CIE584** Quality Management Systems 3
- **CIE585** Risk and Natural Hazard Management 3
- **CIE517** Earthquake Analysis of Structures 3
- **CIE540** Advanced Geotechnical Engineering 3
CIE586  Construction Decision under  3  
CIE587  Construction Cost Engineering  3  
CIE600  Topics in Civil Engineering  3  
CIE602  Project II or any other technically related course approved by the department  3  

Note: All technical electives require at least senior standing in addition to their respective prerequisites.

**COURSE DESCRIPTIONS**

**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.  
*Prerequisites: 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.  
*Prerequisites: 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.  
*Prerequisites: CIE202 Mechanics of Materials.*

**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-requisites: 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.  
*Prerequisites: CIE202 Mechanics of Materials.*

**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-requisites: CIE304 Stress Analysis.*

**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.  
*Prerequisites: CIE302 Structural Analysis I and CIE304 Stress Analysis.*

**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-requisites: 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.  
*Prerequisites: CIE202 Mechanics of Materials.*
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-requisites: 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 similitude, flow measurements.

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-requisites: 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.
*Prerequisites: 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-requisites: CIE322 Hydraulics.*

CIE361 Surveying [2-0, 2 cr.]
Basic measuring procedures for distances, elevations, angles, bearings, azimuths; theory of measurements and errors, leveling, mapping; construction and topographic surveys, traverses, adjustment and closure, subdivision of Land; area and volumes computations, road surveys: coordinate systems, triangulation.
*Prerequisites: MEE211 Engineering Graphics.*

CIE362 Surveying – LAB [0-3, 1 cr.]
Students will apply in the field concepts learned in class including basic measuring procedures for distances, elevations, angles, bearings, azimuths; theory of measurements and errors, leveling, mapping; construction and topographic surveys, traverses, adjustment and closure, area and volumes computations.
*Co-requisites: CIE361 Surveying.*

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.
*Prerequisites: CIE302 Structural Analysis I and CIE304 Stress Analysis.*

CIE424 Water Distribution and Treatment [3-0, 3 cr.]
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 relate appurtenances; water treatment techniques: purpose, sedimentation, thickening, coagulation/flocculation processes and basin design, filtration, disinfection.
*Prerequisites: CIE322 Hydraulics.*

CIE425 Environmental Engineering – LAB [0-3, 1 cr.]
Fundamental quantities, titration, standards, physical, chemical and biological water; wastewater characteristics; parameter determination using standard methods, data reduction, analysis and interpretation.
*Prerequisites: CHM201 Chemical Principles.*
*Co-requisites: 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.
Prerequisites: CIE424 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-requisites: 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.
Prerequisites: fifth 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 and fifth year standing

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.
Prerequisites: CIE202 Mechanics of 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-requisites: 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.
Prerequisites: 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-requisites: 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.
Prerequisites: CIE361 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-requisites: 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. Prerequisites: 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. Prerequisites: INE320 Engineering Economy, Co-requisite GNE305 Professional Ethics, and senior year standing.

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. Prerequisites: 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-requisites: CIE485 Construction Management.

CIE498 Professional Experience [0-6, 6 cr.]
Professional experience through training in the execution of real-life engineering projects. Prerequisites: fifth year standing and consent of instructor.

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. Prerequisites: CIE306 Concrete Structures CIE444 Soil Mechanics and I.

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. Prerequisites: 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. Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: CIE446 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.
Prerequisites: CIE485 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: sixth year standing and consent of instructor

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.
Prerequisites: 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 that gives students the opportunity to examine environmental issues from a variety of perspectives. The knowledge of environmental science’s major issues is central to theories and research in chemistry, biology, civil engineering, as well as social science, business, and public policy. This program’s purpose 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 enriches students’ knowledge of existing global environmental issues and problems. It exposes them to important issues related to environmental problems and their causes, including ecosystems and how they work, deforestation, loss of biodiversity, species extinction, air pollution, global warming, ozone depletion, solid waste disposal, renewable energy, etc. 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.

GOALS OF CURRICULUM

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 an 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
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 REQUIREMENTS

Students must complete a minimum of 18 credits (9 core credits, 9 elective credits)

Core Courses (9 credits)

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>ENV200</td>
<td>Introduction to Environmental</td>
<td>3</td>
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<tr>
<td>ENV402/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>
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Elective Courses (9 credits)

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<th>Credits</th>
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<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>
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</tbody>
</table>
CIE426 Wastewater collection and treatment 3
CIE520 Solid Waste Management 3
CIE585 Risk and Natural Hazard Management 3
ENV426/CIE526 Environmental Remediation 3
ENV427 Environmental Physics 3

*May replace ENV200 for engineering students only. Biology students may substitute it with BIO331 Ecology. CIE courses are considered as CIE technical electives for civil engineering students.

COURSE DESCRIPTIONS

BIO203 Introduction to Ecology [3-o, 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. Additionaly the course tackles concepts of environmental microbiology in relation to pollution, remediation and recycling of liquid and solid wastes.

CHM340 Environmental Chemistry [3-o, 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-o, 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-geocycling 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-o, 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 catalog.
Master of Science (M.S.) in Civil and Environmental Engineering

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 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 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 endeavors.

GOALS OF CURRICULUM

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. in Civil and Environmental Engineering program will be able to:

1. Reinforce skills developed in the undergraduate program;
2. Use advanced analytical, computational, and/or experimental aspects of civil engineering;
3. Make critical judgments based on a sound knowledge base;
4. Conduct research and appreciate its importance in the evolution of civil engineering.

### GOALS OF CURRICULUM

<table>
<thead>
<tr>
<th>Educational Objectives</th>
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</tr>
</tbody>
</table>
EMPHASIS AREAS
The course work for the M.S. in CEE can be grouped into the following three concentrations or emphasis areas:

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.

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.

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 admission 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 five years old will not be accepted.

The admissions committee considers several factors when making decisions, including your academic performance at prior institutions (grades, rankings, and GPAs) and your GRE test score. The graduate assistantship rate, 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.

GRADUATION REQUIREMENTS
Students are required to complete 30 credits for graduation. Students can choose to pursue either a thesis or a non-thesis option. Those 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 an M.S. degree may transfer up to six credits from their B.E. degree, provided that the transferred credits correspond to courses labeled 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. in CEE with a specific concentration or emphasis, the student is required to complete either one of the following options:

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.

The 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 enrollment in that specific course/area.

CURRICULUM

Infrastructure and Construction Management

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit</th>
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<tbody>
<tr>
<td>CIE760</td>
<td>Transportation Engineering II</td>
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<tr>
<td>CIE781</td>
<td>Traffic Engineering</td>
<td>3</td>
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<tr>
<td>CIE782</td>
<td>Infrastructure Management</td>
<td>3</td>
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<tr>
<td>CIE784</td>
<td>Quality Management Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIE785</td>
<td>Risk and Natural Hazard Management</td>
<td>3</td>
</tr>
<tr>
<td>CIE786</td>
<td>Highway Design and Management</td>
<td>3</td>
</tr>
<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>
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<tr>
<td>CIE789</td>
<td>Cost Engineering and Control</td>
<td>3</td>
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<tr>
<td>CIE790</td>
<td>Construction Methods</td>
<td>3</td>
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<td>CIE791</td>
<td>Project Scheduling</td>
<td>3</td>
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<tr>
<td>CIE792</td>
<td>Project Contracting</td>
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Environmental Science, Engineering and Other Courses (12 credits)

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<tr>
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<tr>
<td>CIE720</td>
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<tr>
<td>CIE721</td>
<td>Hydrology</td>
<td>3</td>
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<tr>
<td>CIE722</td>
<td>Environmental Impact Assessment</td>
<td>3</td>
</tr>
<tr>
<td>CIE723</td>
<td>Water Resources: Planning and Management</td>
<td>3</td>
</tr>
<tr>
<td>CIE724</td>
<td>Air Quality Management</td>
<td>3</td>
</tr>
<tr>
<td>CIE725</td>
<td>Geo-environmental Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CIE726</td>
<td>Unit Operations of Water Treatment Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIE727</td>
<td>Unit Operations of Wastewater Treatment Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIE728</td>
<td>Fate &amp; Transport of Pollutants in the Environment</td>
<td>3</td>
</tr>
<tr>
<td>CIE729</td>
<td>Hydrogeology</td>
<td>3</td>
</tr>
<tr>
<td>CIE730</td>
<td>Irrigation and Drainage</td>
<td>3</td>
</tr>
<tr>
<td>CIE731</td>
<td>Urban Water Resources</td>
<td>3</td>
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<tr>
<td>CIE732</td>
<td>Advanced Environmental Engineering</td>
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<tr>
<td>CIE733</td>
<td>Groundwater Engineering</td>
<td>3</td>
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<tr>
<td>CIE799</td>
<td>Special Topics Course</td>
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</tr>
<tr>
<td>CIE891</td>
<td>Project Course</td>
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<tr>
<td>CIE899</td>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

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.
Prerequisites: CIE202 Mechanics of Materials.

CIE704 Case Histories in Structural and Geotechnical Engineering [3-0, 3 cr.]
This course is a selection of case histories in structural and 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.
Prerequisites: CIE302 Structure Analysis I and CIE444 Soil Mechanics.

CIE705 Computational Hydraulics [3-0, 3 cr.]
This course covers the formulation of ordinary and partial differential equations related to flow and transport problems such as flood waves, tidal propagation, shallow waves and transport of pollutants. The course also covers the numerical solutions using finite difference (explicit and implicit) schemes, finite element techniques and boundary integral methods. Also, the course comprises the measuring techniques in flow problems, data acquisition and online analysis.
Prerequisites: 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.
Prerequisites: CIE302 Structural Analysis I.

CIE707 Earthquake Engineering [3-0, 3 cr.]
This course is an introduction to earthquakes, seismological and faulting mechanisms, design of constructed facilities and infrastructural systems under earthquake loads, risk assessment and strengthening and case studies.
Prerequisites: CIE302 Structure Analysis I and GNE331 Probability and Statistics.

CIE708 Applied Elasticity [3-0, 3 cr.]
This course covers tensor notation, analysis of stress, two-dimensional elasticity, bending of beams, torsion of prismatic bars, asymmetrically loaded members, beams on elastic foundations and elastic stability.

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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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 nonhazardous residues, solid waste management processes,
environmental impact assessment, environmental legislation and risk, and pollution control management.

Prerequisites: Consent of 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.

Prerequisites: 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.

Prerequisites: 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 modeling and flood and drought forecasting demonstrated are discussed with system analysis methods.

Prerequisites: CIE721 Hydrology.

CIE724 Air Quality Management [3-0, 3 cr.]
This course covers the analysis of air pollution sources and methods for controlling emissions, with a focus on transportation-related air pollution. The course also encompasses a summary of fundamental chemical and physical processes governing pollutant behavior, and a quantitative overview of the characterization and control of air pollution problems. The analysis of key elements of the air pollution system such as the sources and control techniques, atmospheric transformations, atmospheric transport and modeling are discussed.

Prerequisites: CIE320 Fluid Mechanics and CHM201 Chemical Principles.

CIE725 Geo-environmental Engineering [3-0, 3 cr.]
This course covers the geotechnical practice in environmental protection and restoration. The characterization of contaminated sites, preliminary site assessment, site investigation techniques and site cleanup and remediation technologies, as well as the monitoring requirements, are discussed. The course also covers the methods of soil and site characterization for siting of waste repositories, the design of waste containment systems, including landfills, slurry walls and soil stabilization, as well as the applicability and use of geosynthetics.

Prerequisites: 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.

Prerequisites: 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 modeling and control, sludge treatment and disposal, and unit operations and processes of
wastewater treatment.

Prerequisites: 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.

Prerequisites: CIE426 Wastewater Collection and Treatment.

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.

Prerequisites: CIE721 Hydrology.

CIE730 Irrigation and Drainage [3-0, 3 cr.]
This course covers 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.

Prerequisites: 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.

Prerequisites: CIE721 Hydrology.

CIE732 Advanced Environmental Engineering [3-0, 3 cr.]
This course covers reaction kinetics, classes and types of reactions, rates and orders, analysis of experimental data, applications, setup of mass balances, flow analysis of CM and PF regimes, detention time in vessels, flow and quality equalization, system material balances, sludge production in activated sludge systems, nitrogen and phosphorus removal, treatment in ponds and wetlands as well as natural systems, fate and transport of pollutants in natural waters, loading equations for streams, dissolved oxygen variation in a stream.

Prerequisites: CIE426 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.

Prerequisites: 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, and case studies.

Prerequisites: 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.

Prerequisites: 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.
CIE782 Infrastructure Management [3-o, 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.
*Prerequisites: CIE485 Construction Management.*

CIE784 Quality Management Systems [3-o, 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.
*Prerequisites: Consent of the instructor.*

CIE785 Risk and Natural Hazard Management [3-o, 3 cr.]
This course covers the types, frequency, and the effects of natural hazards, the calculation of the return period, and the planning and designing of engineering systems to survive natural events, as well as the mitigation of damage.
*Prerequisites: GNE331 Probability and Statistics.*

CIE786 Highway Design and Management [3-o, 3 cr.]
This course is an introduction to highway networks, their engineering and management characteristics, and their maintenance and performance issues, financing and cost recovery methods, and integrated solutions and information technology tools (use of HDM tools by the World Road Association PIARC).
*Prerequisites: CIE460 Highway Engineering and INE320 Engineering Economy.*

CIE787 Concrete and Steel Construction [3-o, 3 cr.]
This course covers the selection and planning of construction methods for modern concrete and steel structures, including bridges, high-rise buildings, sea structures, structural steel erection, and the heavy industrial plants including special forming and heavy erection and false-work.
*Prerequisites: CIE306 Concrete Structures I, CIE400 Steel Structures, and CIE485 Construction Management.*

CIE788 GIS and Remote Sensing [3-o, 3 cr.]
This course covers the fundamentals of sensing earth resources, data acquisition and sis, 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.
*Prerequisites: CIE361 Surveying.*

CIE789 Cost Engineering and Control [3-o, 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.
*Prerequisites: CIE485 Construction Management.*

CIE790 Construction Methods [3-o, 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.
*Prerequisites: CIE308 Construction Materials and CIE306 Concrete Structures I.*

CIE791 Project Scheduling [3-o, 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.
*Prerequisites: Consent of instructor.*

CIE792 Project Contracting [3-o, 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.
*Prerequisites: Consent of instructor.*
CIE799 Special Topic Course [3-o, 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.
Prerequisites: To be announced prior to registration time.

CIE891 Project Course [3-o, 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.
Prerequisites: Consent of the instructor.

CIE899 Thesis [6-o, 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.
Prerequisites: Consent of the instructor.

Department of Electrical & Computer Engineering

PROGRAMS/DEGREES AVAILABLE:
• Bachelor of Engineering (B.E.) in Computer Engineering
• Bachelor of Engineering (B.E.) in Electrical Engineering
• Master of Science (M.S.) in Computer Engineering
Bachelor of Engineering (B.E.) in Computer Engineering

The Bachelor of Engineering degree program in Computer Engineering is accredited by the Engineering Accreditation Commission of ABET (www.abet.org).

Students in the computer engineering program develop an in-depth knowledge of digital systems, computers, software, networks, and communications systems. In addition to 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 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 opt 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.

GOALS OF CURRICULUM

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

Student Outcomes

The students will acquire in their matriculation through the program, the following skills, knowledge, and behaviors:

1. An ability to apply knowledge of mathematics, science, and engineering;
2. An ability to design and conduct experiments, as well as to analyze and interpret data;
3. 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;
4. An ability to function on multidisciplinary teams;
5. An ability to identify, to formulate, and to solve engineering problems;
6. An understanding of one’s professional and ethical responsibility;
7. An ability to communicate effectively;
8. A broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;
9. Recognition of the need and the ability to engage in lifelong learning;
10. Knowledge of contemporary issues;
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

MAJOR REQUIREMENTS

YEAR I (42 CREDITS)

Fall Semester (16 credits)

<table>
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<tr>
<th>Course</th>
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<td>PHY201</td>
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<tr>
<td>MTH201</td>
<td>Calculus III</td>
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<td>COE212</td>
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<tr>
<td>GNE212</td>
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Spring Semester (16 credits)

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>MTH207</td>
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<tr>
<td>ETH201</td>
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<tr>
<td>MTH206</td>
<td>Calculus IV</td>
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<tr>
<td>MTH304</td>
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Summer Module I (6 credits)

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Summer Module II (3 credits)

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YEAR II (37 CREDITS)

Fall Semester (15 credits)

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<td>ENG203</td>
<td>Fundamentals of Oral</td>
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<tr>
<td>ELE302</td>
<td>Electrical Circuits II</td>
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<td>ELE303</td>
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<tr>
<td>COE312</td>
<td>Data Structures</td>
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<tr>
<td>COE321</td>
<td>Logic Design</td>
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<td>COE322</td>
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Spring Semester (16 credits)

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<td>COE323</td>
<td>Microprocessors</td>
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Summer Module I (2 credits)

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Summer Module II (4 credits)

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<td>GNE331</td>
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YEAR III (38 CREDITS)

Fall Semester (17 credits)

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<td>ELE442</td>
<td>Control Systems</td>
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<tr>
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<tr>
<td>COE423</td>
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<td>COE493</td>
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<td>COE324</td>
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**Spring Semester (15 credits)**

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<tbody>
<tr>
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<td>COE425</td>
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<td>COE492</td>
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**Summer Module II (6 credits)**

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<tbody>
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**YEAR IV (33 CREDITS)**

**Fall Semester (18 credits)**

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<tr>
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<td>Database Systems</td>
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<tr>
<td>COE414</td>
<td>Operating Systems</td>
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<tr>
<td>COE591</td>
<td>Capstone Design Project</td>
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</tr>
<tr>
<td>COE593</td>
<td>COE Application</td>
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**Spring Semester (15 credits)**

<table>
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<th>Course Code</th>
<th>Course Name</th>
<th>Credits</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>
<td>3</td>
</tr>
</tbody>
</table>

**ENGINEERING ELECTIVES**

Engineering electives can be any of the following courses:
- INE307 Deterministic OR models
- INE308 Stochastic OR models
- INE428 Project Management
- INE529 Project Contracting

**TECHNICAL ELECTIVES**

ECE technical electives for both COE and ELE programs are grouped into four different tracks. The four tracks and their respective courses are:

**Communication & Networks:**
- ELE535 Information & Coding Theory
- ELE531 Optical Fiber Communication
- ELE538 Noise in Communications
- ELE539 Telecommunications
- COE535 Optical Networks

**Computer Hardware & Systems:**
- COE527 VLSI Design
- COE521 Embedded Systems
- COE522 High Performance Computer Architecture

**Systems Engineering:**
- ELE548 Linear Systems
- ELE553 Reliability
- ELE525 Faulted Power Systems
- ELE526 Renewable Energy Sources
- ELE501 Microelectronics

**Theory & Algorithms:**
- COE555 Queuing Theory
- ELE535 Information & Coding Theory
- ELE557 Sim. of Electronics Cir.
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.

**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.  
*Prerequisites: 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.

**COE312 Data Structures [3-0, 3 cr.]**
This course covers the programming principles, stacks and recursion, queues, lists, searching, and sorting algorithms, binary trees and the introduction to object-oriented programming concepts.  
*Prerequisites: 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.  
*Prerequisites: COE201 Computer Proficiency, COE212 Engineering Programming, MTH207 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.  
*Prerequisites: COE321 Logic 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.
*Prerequisites: COE312 Data Structures, COE323 Microprocessors.*

**COE416 Software Engineering [3-0, 3 cr.]**
This course covers the analysis, development, design and documentation of software.
*Prerequisites: 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.
*Prerequisites: COE212 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.
*Prerequisites: 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.
*Prerequisites: 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.

**COE492 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.
Concurrent with COE424 Digital Systems.*

**COE493 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.
*Prerequisites: 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.
*Prerequisites: Fifth year standing and instructor’s consent.*
COE522 High Performance Computer Architecture [3-0, 3 cr.]
This course covers topics in advanced pipelined techniques and scheduling, instruction level parallelism, and dynamic scheduling. Advanced processor design techniques are introduced such as superscalar, super-pipelined, VLIW, multiprocessing, multithreading, and supercomputing architectures. In addition, relationships between high-performance computing and interconnection networks, embedded systems, advanced storage systems, and cloud computing examples are established.
Prerequisites: COE423 Computer Architecture or instructor’s consent.

COE526 VLSI Design Automation [3-0, 3 cr.]
This course covers the algorithms and methodologies for the synthesis, analysis, and verification of digital systems, silicon compilation, high-level synthesis, logic synthesis, and layout synthesis, hardware description languages and their use in the synthesis process, fault simulation and coverage analysis, and the extensive use of electronic design automation tools.
Prerequisite: COE321 Logic Design.

COE527 VLSI Design [3-0, 3 cr.]
This course covers the VLSI design, circuits’ layout, timing, delay, power estimation, use of layout editors and circuit simulation tools, synthesis, and an introduction to electronic design automation.
Prerequisite: COE321 Logic Design

COE533 Advanced Computer Networks [3-0, 3 cr.]
This course covers advanced networks, remote procedure calls (RPC’s), layering and ISO.
Prerequisites: COE431 Computer Networks.

COE591 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.
Prerequisites: Fifth-year standing.

COE592 Project II [3-0, 3 cr.]
This course is an advanced engineering project, using acquired technical knowledge, formal report, and presentation.
Prerequisites: Final-year standing and instructor’s consent.

COE593 COE Application [3-0, 3 cr.]
This course allows COE graduates to acquire the technical skills that are required to match a specific industry-related need. In particular, it exposes students to the techniques, which can improve their chances of gaining employment in jobs aligned with the considered need. This exposure is reinforced by an extensive hands-on experience that is brought into classroom through small-scale projects pertaining to problems inspired from the identified need.
Prerequisites: Fourth-year standing

COE599 Topics in Computer Engineering [1-3, 3 cr.]
This course covers the treatment of new developments in various areas of computer engineering.
Prerequisites: Fifth-year standing.
Bachelor of Engineering (B.E.) in Electrical Engineering

The Bachelor of Engineering degree program in Electrical Engineering is accredited by the Engineering Accreditation Commission of ABET (www.abet.org).

Electrical Engineering is a science-oriented branch of engineering, primarily concerned with all the phases of development and utilization of electric signals. The study of electrical engineering can be conveniently divided into the areas of circuits, electronics, electromagnetism, electric energy systems, communications, control, and computer engineering. Due to the extremely rapid growth and changes relating to the application of electrical engineering principles, the curriculum is designed for concentration on a solid core of basic foundation courses, covering all areas of electrical engineering. 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 Electrical 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 Electrical Engineering program is to educate each student to become a responsible and productive electrical engineer capable of effectively managing future challenges.

GOALS OF CURRICULUM
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.

Student Outcomes
The students will acquire in their matriculation through the program, the following skills, knowledge, and behaviors:
1. An ability to apply knowledge of mathematics, science, and engineering;
2. An ability to design and conduct experiments, as well as to analyze and interpret data;
3. 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;
4. An ability to function on multidisciplinary teams;
5. An ability to identify, to formulate, and to solve engineering problems;
6. An understanding of one’s professional and ethical responsibility;
7. An ability to communicate effectively;
8. A broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;
9. A recognition of the need and the ability to engage in lifelong learning;
10. A knowledge of contemporary issues;
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

CURRICULUM

YEAR I (42 CREDITS)

Fall Semester (17 credits)

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<tr>
<th>Course Code</th>
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<td>PHY201</td>
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<td>MTH201</td>
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<td>Engineering Mechanics</td>
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Spring Semester (16 credits)

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Summer Module I (6 credits)

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Summer Module II (3 credits)

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YEAR II (37 CREDITS)

Fall Semester (15 credits)

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<td>ELE391</td>
<td>Mathematical Methods in Electrical Engineering</td>
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Spring Semester (16 credits)

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<th>Course Code</th>
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<td>ELE411</td>
<td>Electromagnetic Fields</td>
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Summer Module I (2 credits)

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Summer Module II (4 credits)

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<td>GNE331</td>
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### YEAR III (40 CREDITS)

#### Fall Semester (17 credits)

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<td>ELE537</td>
<td>Communication Systems</td>
<td>3</td>
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<td>ELE442</td>
<td>Control Systems</td>
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#### Spring Semester (17 credits)

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<td>ELE420</td>
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<tr>
<td>ELE538</td>
<td>Noise in Communication Systems</td>
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<tr>
<td>ELE540</td>
<td>Communications Systems Lab</td>
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<tr>
<td>INE320</td>
<td>Engineering Economy I</td>
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<tr>
<td>ELE492</td>
<td>Fundamentals in ECE</td>
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#### Summer Module II (6 credits)

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<tr>
<td>COE498</td>
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### YEAR IV (31 CREDITS)

#### Fall Semester (15 credits)

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<tr>
<td>ELE433</td>
<td>Electromagnetic Waves</td>
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</tr>
<tr>
<td>ELE591</td>
<td>Capstone Design Project</td>
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<tr>
<td>MEE220</td>
<td>Engineering Graphics</td>
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<tr>
<td>ELE422</td>
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#### Spring Semester (16 credits)

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<td>ECE Track U2</td>
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<tr>
<td>ELE593</td>
<td>ELE Application</td>
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<tr>
<td>ELE423</td>
<td>Power Systems Lab</td>
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<td></td>
<td>Engineering Elective</td>
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<td>ECE Elective</td>
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<tr>
<td>ELE539</td>
<td>Telecommunication Systems</td>
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</tbody>
</table>

### TECHNICAL ELECTIVES

ECE technical electives for both COE and ELE programs are grouped into four different tracks. The four tracks and their respective courses are:

#### Communication & Networks:
- ELE535 Information & Coding Theory
- ELE531 Optical Fiber Communication
- ELE538 Noise in Communications
- ELE539 Telecommunications
- COE431 Computer Networks
- COE535 Optical Networks

#### Computer Hardware & Systems:
- COE527 VLSI Design
- COE521 Embedded Systems
- COE522 HighPerformance Computer Architecture
- COE423 Computer Architecture

#### Systems Engineering:
- ELE548 Linear Systems
- ELE553 Reliability
- ELE525 Faulted Power Systems
- ELE526 Renewable Energy Sources
- ELE501 Microelectronics
Theory & Algorithms:
- COE418 Database Systems
- COE414 Operating Systems
- COE555 Queueing Theory
- ELE535 Information & Coding Theory
- ELE557 Sim. of Electronics Cir.

ENGINEERING ELECTIVES
Engineering electives can be any of the following courses:
- INE307 Deterministic OR models
- INE308 Stochastic OR models
- INE428 Project Management
- INE529 Project Contracting
- INE527 Project Scheduling
- INE350 Simulation
- INE402 Optimization
- 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

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.

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, DC and sinusoidal excitation of circuits, and computer-aided circuit simulation (SPICE).
Prerequisites: PHY201 Electricity and Magnetism.

ELE302 Electrical Circuits II [3-0, 3 cr.]
This course covers frequency-domain response of circuits; transfer functions; transformers, three-phase circuits, 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 MTH304 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.

ELE391 Mathematical Methods In Electrical Engineering [3-0 3 cr.]
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 Eigen structure analysis; matrix representations of linear electrical systems; analytic functions of complex variables and contour integrals; Cauchy integral formula.
Prerequisites: MTH304 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 diodes, LEDs, Photodiodes, BJTs, to MOSFETS. Their applications include the design of regulators, rectifiers, clampers, operational amplifiers and digital integrated circuitry.
Prerequisites: 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.
Prerequisites: ELE201 Electrical Circuits I, ELE391 Mathematical Methods in Electrical Engineering, COE321 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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).
Prerequisites: ELE430 Signals and Systems.
ELE443 Control Systems Lab [0-3, 1 cr.]
Laboratory experiments in Control Systems. This course introduces students to the implementation of PID-controllers and two-step controllers, first order delay as well as third order delay, such implementation are done using educational PID boards and DC servo boards. Experimentations and analysis use Industrial standard oscilloscopes, and data-acquisition boards interfaced via SIMULINK/MATLAB. 
Concurrent with ELE442 Control Systems.

ELE492 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. 
Prerequisites: ELE401 Electronics I, ELE430 Signals and Systems, GNE 331 Probability and Statistics, COE323 Microprocessors.

ELE493 PROFESSIONALISM IN ENGINEERING [3-o, 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. 
Prerequisites: 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. 
Prerequisites: Fifth-year standing and the consent of the instructor.

ELE501 Microelectronics [3-o, 3 cr.]
This course provides students with advanced knowledge of integrated circuit theory. Topics include: Single-stage integrated circuit amplifiers; differential and multi-stage amplifiers, integrated-circuits biasing techniques; non-ideal characteristics; frequency response; feedback amplifiers; output stages; digital CMOS logic circuits. 
Prerequisites: ELE401 Electronics I.

ELE525 Faulted Power System [3-o, 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. 
Prerequisites: ELE422 Power Systems.

ELE526, Renewable Energy Sources [3-o, 3 cr.]
This course covers the principles of emerging renewable technologies, including solar, wind, biomass, geothermal, hydropower and other energy sources. A premise of the course is that a renewable energy technology must both be technically feasible and economically viable. At the conclusion of the course, students will have a solid technical and economic understanding of these energy technologies. 
Prerequisites: Consent of instructor.

ELE528 Electrification of Plants [3-o, 3 cr.]
Electrical Design, software and calculation notes complete including Lighting, Power and Low current systems design. 
Prerequisites: ELE422 Power Systems.

ELE531 Optical Fiber Communications [3-o, 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. 
Prerequisites: GNE331 Probability and Statistics.

ELE535 Information and Coding Theory [3-o, 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.

Prerequisites: GNE331 Probability and Statistics.

ELE537 Communication Systems [3-o, 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.

Prerequisites: ELE430 Signals and Systems, GNE331 Probability and Statistics.

ELE538 Noise in Communication Systems [3-o, 3 cr.]
This course covers physical noise sources, noise calculations in communication systems, stochastic processes, and communication systems performance in the presence of noise.

Prerequisites: ELE537 Communication Systems.

ELE539 Telecommunication Systems [3-o, 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.

Prerequisites: ELE537 Communication Systems.

ELE540 Communication Systems Lab [0-3, 1 cr.]
This is a lab course with experiments in communication systems. The experiments implement the modulation and the demodulation techniques acquired in the communication system course through modulation and demodulation boards and through MATLAB.

Prerequisites: ELE537 Communication Systems.

ELE557 Simulation of Electronic Circuits [3-o, 3 cr.]
This course covers the principles of efficient electronic circuit simulation using numerical methods and techniques. Topics include the formulation of network equations, dc analysis, frequency domain analysis, simulation of nonlinear networks, transient analysis, sensitivity analysis, and model order reduction. The simulation of specialized circuits is also considered, including the analysis of radio frequency circuits and high-speed interconnects. In addition, students will learn how to implement circuit simulation methods using mathematical software tools.

Prerequisites: ELE401 Electronics I.

ELE591 Capstone Design Project I [3-o, 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.

Prerequisites: Fifth-year standing.

ELE592 Project II [3-o, 3 cr.]
This course is an advanced engineering project using acquired technical knowledge, formal report, and presentation.

Pre-requisites: Fifth year standing and instructor’s consent.

ELE593 ELEapplication [3-o, 3 cr.]
This course allows ELEgraduates to acquire the technical skills that are required to match a specific industry-related need. In particular, it exposes students to the techniques, which can improve their chances of gaining employment in jobs aligned with the considered need. This exposure is reinforced by an extensive hands-on experience that is brought into classroom through small-scale projects pertaining to problems inspired from the identified need.

Prerequisites: Fourth Year standing.

ELE599 Topics in Electrical Engineering [1-3, 3 cr.]
This course covers the treatment of new development in various areas of Electrical Engineering.

Prerequisites: Final-year standing and instructor’s consent.
Master of Science (M.S.) 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:

• A sufficient level of breadth that guarantees general knowledge in the main areas of COE/CCE. These areas were chosen carefully to span: Hardware and Systems, Software and Theory, Communication Systems, and Systems Engineering.
• 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.

GOALS OF CURRICULUM

Educational Objectives
The purpose of the graduate program in Computer Engineering is to:

• Aid students in creatively using their background in basic sciences and mathematics, as well as their expertise in certain areas of computer engineering;
• 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;

• Provide a creative, critical and model-based thinking and problem-solving approach;
• 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:

1. The ability to demonstrate a mastery of the methodology and the techniques specific to the field of study;
2. The ability to communicate both orally and in writing at a high level of proficiency in the field of study;
3. The ability to conduct research or to develop other forms of creative project work;
4. The ability to function as a professional in the discipline.

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 five years old will not be accepted.

The admissions committee considers several factors when making admission decisions, including 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.

**CURRICULUM**

**EMPHASIS AREAS**
The course work for the master’s program in computer engineering can be grouped into the following two emphasis areas:
- Computer Engineering
- 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.

**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 who are pursuing an M.S. degree may transfer up to six credits from their B.E. 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:
- Hardware and Systems
- Software and Theory
- Communication Systems
- 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 M.S. in Computer Engineering with emphasis on:
- Computer Engineering, the student is required to complete at least:
  1. Four courses from Hardware & Systems;
  2. One course from Software and Theory; and
  3. One course from either Communication Systems or Systems Engineering.
- Computer and Communications Engineering, the student is required to complete at least:
  1. Two courses from Hardware & Systems;
  2. One course from Software & Theory;
  3. Two courses from Communication Systems; and
  4. 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.

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

#### Hardware

<table>
<thead>
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<tr>
<td>COE725</td>
<td>VLSI Design</td>
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<tr>
<td>COE722</td>
<td>Rapid Prototyping</td>
<td>3</td>
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<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>COE721</td>
<td>Embedded Systems</td>
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#### Systems

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<tr>
<td>COE533</td>
<td>Advanced Computer Networks</td>
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<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>
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#### Software & Theory

#### Software

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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>
<td>COE716</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</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>
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<tr>
<td>COE753</td>
<td>Heuristic Optimization</td>
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</tr>
<tr>
<td>COE754</td>
<td>Automata Theory &amp; Formal Languages</td>
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<tr>
<td>COE755</td>
<td>Queueing Theory</td>
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### Communication Systems

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<td>ELE735</td>
<td>Information &amp; Coding Theory</td>
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<tr>
<td>ELE757</td>
<td>Simulation of Electronic Circ.</td>
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### Systems Engineering

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<th>Course Title</th>
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<td>ELE731</td>
<td>Optical Fiber Communications</td>
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<tr>
<td>ELE732</td>
<td>Wireless Communication Systems</td>
<td>3</td>
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<tr>
<td>ELE733</td>
<td>Mobile Communication Systems</td>
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</tr>
<tr>
<td>ELE735</td>
<td>Information and Coding Theory</td>
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</tbody>
</table>

B.E. degree holders who are pursuing an M.S. degree may transfer the following courses (provided the student has scored at least a B): ELE538 Noise in Communication Systems and ELE539 Telecommunication Systems.

### Other Courses

<table>
<thead>
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<tr>
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<td>Special Topics</td>
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<tr>
<td>COE898</td>
<td>Project</td>
<td>3</td>
</tr>
<tr>
<td>COE899</td>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

### Topics Courses

When offered, advanced topic courses can count toward the breadth or depth requirements, upon the approval of the student’s advisor. Topic courses are three-credit courses, and might not be offered every year.

### Project Courses

A three-credit project course, in any of the concentration areas, can also be considered as a regular course, only for the non-thesis option. The student is limited to at most one project course.
Remedial Courses
Remedial courses may be required from students seeking a degree not in their undergraduate field of specialization.

COURSE DESCRIPTIONS

COE711 Transactions Processing Systems [3-0, 3 cr.]
This course covers the theoretical foundations underlying commitment protocols that form the basis of transaction processing techniques. Transaction processing systems have lots of moving parts such as: client-side forms, web-servers, mid-tier application servers, and back-end databases. Although these components are distributed across multiple processes, these processes share state, and use specialized communication protocols and synchronization techniques. This course explains how these systems are constructed. Topics include the transaction abstraction, application servers, transactional communications, persistent queuing and workflow, software fault tolerance, concurrency control algorithms, database recovery algorithms, distributed transactions, two-phase commit, and data replication.
Prerequisites: COE312 Data Structures and Algorithms.

COE712 Distributed Systems [3-0, 3 cr.]
This course is an introduction to distributed systems, distributed system models, network architecture and protocols, inter process 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.

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.
Prerequisites: COE312 Data Structures and Algorithms.

COE716 Knowledge-Based Systems [3-0, 3 cr.]
This course covers the knowledge representation, search techniques, logical reasoning, and language understanding. The course is an introduction to the methodology of design and the implementation of expert systems. The course emphasizes the techniques for representing and organizing domain and control knowledge, as opposed to the theory and implementation of inference engines.
Prerequisites: COE312 Data Structures and Algorithms.

COE717 Parallel Programming and Cluster Workstations [3-0, 3 cr.]
This course covers 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.
Prerequisites: 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 transforma-
ctions, computational geometry, computer-human interfaces, animation, and visual realism.

Prerequisites: CSC312 Data Structures and Algorithms.

**COE721 Embedded Systems [3-0, 3 cr.]**
This course provides an introduction to the design of embedded systems including both their hardware and software. Topics ranging from simple circuit design to computer architecture will be discussed. Different types of processors will be presented along with interfacing to memories, I/O devices, and other processors. The 68HC12 or PIC microcontrollers will be used as an example processor for assignments and the course project.

Prerequisites: Consent of instructor.

**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.

Prerequisites: COE312 Reconfigurable Computing.

**COE723 High Performance Computer Architecture [3-0, 3 cr.]**
This course covers topics in advanced pipeline techniques and scheduling, instruction level parallelism, and dynamic scheduling. Advanced processor design techniques are introduced such as superscalar, super-pipelined, VLIW, multiprocessing, multithreading, and supercomputing architectures. In addition, relationships between high-performance computing and interconnection networks, embedded systems, advanced storage systems, and cloud computing examples are established.

Prerequisites: COE423 Computer Architecture or the consent of the instructor.

**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.

Prerequisites: COE321 Logic 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.

Prerequisites: COE321 Logic Design.

**COE728 ULSI Testing [3-0, 3 cr.]**
This course covers the problems of testing of Ultra Large Scale Integrated Circuits (ULSI), the design of circuits for testability, the design of built-in self-testing circuits, and the use of the IEEE Boundary Scan Standards. Topics include introduction to the testing process, fault modeling and detection, logic and fault simulation, testability measures, test generation for combinational circuits, test generation for sequential circuits, design for testability, built-in self-test, delay testing, current testing, ATPG-based logic synthesis, system test, and core-based design, and testing a system-on-a-chip (SOC).

Prerequisites: COE321 Logic 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.

*Prerequisites: COE431 Computer Networks.*

**COE733 Optical Networks [3-o, 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.

*Prerequisites: Instructor’s consent.*

**COE741 Artificial Intelligence [3-o, 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.

*Prerequisites: COE312 Data Structures and Algorithms.*

**COE742 Neural Networks [3-o, 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.

*Prerequisites: Instructor’s consent.*

**COE752 Design and Analysis of Algorithms [3-o, 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.

*Prerequisites: Instructor’s consent.*

**COE753 Heuristic Optimization [3-o, 3 cr.]**
This course covers the basic heuristic optimization techniques in computing. This course describes a variety of heuristic search methods including serial simulated annealing, Tabu search, genetic algorithms, ant algorithms, Derandomized evolution strategy, and random walk. Algorithms will be described in serial as well as in parallel fashion. Students can select application projects from a range of application areas. The advantages and disadvantages of heuristic search methods, for both serial and parallel computation, are discussed in comparison to other optimization algorithms.

**COE754 Automata Theory and Formal Languages [3-o, 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.

*Prerequisites: Instructor’s consent.*

**COE755 Queuing Theory [3-o, 3 cr.]**
This course introduces two modeling techniques, namely simulation and queuing modeling techniques. The following topics are discussed in this regard: single queue Markovian systems, semi-Markovian queuing systems, open queuing networks, closed queueing networks, pseudo-random number generation, estimation techniques for analyzing endogenously created data, and validation of a simulation design.

*Prerequisites: Instructor’s consent.*
COE898 Project [3-0, 3 cr.]
This design course integrates various areas of electrical and computer engineering into a real design project. Design reviews, and a final oral presentation with a written report, are required.
Prerequisites: 15 graduate credits, and the consent of the instructor.

COE899 Thesis [6-0, 6 cr.]
This is a master’s thesis research 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.
Prerequisites: ELE442 Control Systems.

ELE724 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.
Prerequisite: ELE422 Power Systems and instructor’s consent.

ELE726 Renewable Energy Sources [3-0, 3 cr.]
This course covers the principles of emerging renewable technologies, including solar, wind, biomass, geothermal, hydropower and other energy sources. A premise of the course is that a renewable energy technology must both be technically feasible and economically viable. At the conclusion of the course, students will have a solid technical and economic understanding of these energy technologies.
Prerequisites: Instructor’s consent.

ELE731 Optical Fiber Communications [3-0, 3 cr.]
This course covers the wave guiding 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.
Prerequisites: Instructor’s consent.

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.
Prerequisites: 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.
Prerequisites: ELE732 Wireless Communication Systems or Telecommunication Systems.

ELE734 Optical Fiber Communications [3-0, 3 cr.]
Basic principles of point-to-point optical fiber communications, wave guiding and signal degradation in optical fibers, optical sources, photo detectors, WDM components, dimensioning of fiber links for analog and digital transmissions, performance of digital optical communication systems in the presence of noise.
Prerequisites: Consent of instructor.

ELE735 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.
Prerequisites: Instructor’s consent.
**ELE742 Linear Systems [3-o, 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.
*Prerequisites: ELE442 Control Systems.*

**ELE753 Reliability [3-o, 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 MonteCarlo simulation in basic system reliability evaluation.
*Prerequisites: GNE331 Probability and Statistics.*

**Special Topics [3-o, 3 cr.]**
This course covers topics of current interest selected by the faculty.
*Prerequisites: The consent of the instructor.*

**ELE757 Simulation of Electronic Circuits [3-o, 3 cr.]**
This course covers the principles of efficient electronic circuit simulation using numerical methods and techniques. Topics include the formulation of network equations, dc analysis, frequency domain analysis, simulation of nonlinear networks, transient analysis, sensitivity analysis and model order reduction. The simulation of specialized circuits is also considered, including the analysis of radio frequency circuits and high-speed interconnects. In addition, students will learn how to implement circuit simulation methods using mathematical software tools.
*Prerequisites: ELE401 Electronics I.*

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**Department of Industrial & Mechanical Engineering**

**PROGRAMS/DEGREES AVAILABLE:**
- Bachelor of Engineering (B.E.) in Industrial Engineering
- Bachelor of Engineering (B.E.) in Mechanical Engineering
  - **Minor in** Packaging
- Master of Science (M.S.) in Industrial Engineering and Engineering Management.
Bachelor of Engineering (B.E.) in Industrial Engineering

The Bachelor of Engineering degree program in Industrial Engineering is accredited by the Engineering Accreditation Commission of ABET (www.abet.org).

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 opt 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.

GOALS OF CURRICULUM

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 area 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.

Student Outcomes
The students will acquire in their matriculation through the program, the following skills, knowledge, and behaviors:
1. An ability to apply knowledge of mathematics, science and engineering;
2. An ability to design and conduct experiments, as well as to analyze and interpret data;
3. 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;
4. An ability to function on multidisciplinary teams;
5. An ability to identify, formulate and solve engineering problems;
6. An understanding of one’s professional and ethical responsibility;
7. An Ability to communicate effectively;
8. A broad education necessary to understand the impact of engineering
solutions in a global, economic, environmental, and societal context;
9. A recognition of the need and the ability to engage in lifelong learning;
10. A knowledge of contemporary issues;
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

CURRICULUM

YEAR I (42 CREDITS)

Fall Semester (16 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>COE212</td>
<td>Engineering programming</td>
<td>3</td>
</tr>
<tr>
<td>ENG202</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>MTH201</td>
<td>Calculus III</td>
<td>3</td>
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<td>LAC Elective</td>
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Spring Semester (16 credits)

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<th>Course</th>
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<tbody>
<tr>
<td>ARA 201</td>
<td>Appreciation of Arabic Lit.</td>
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<tr>
<td>ELE305</td>
<td>Introduction to Electrical Eng.</td>
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<td>ETH 201</td>
<td>Moral Reasoning</td>
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<tr>
<td>MTH304</td>
<td>Differential Equations</td>
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<td>MTH206</td>
<td>Calculus IV</td>
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Summer Module II (6 credits)

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<td>GNE333</td>
<td>Engineering Analysis I</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>PED2--</td>
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YEAR II (40 CREDITS)

Fall Semester (15 credits)

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<tr>
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<tr>
<td>INE307</td>
<td>Introduction to Deterministic OR Models</td>
<td>3</td>
</tr>
<tr>
<td>INE350</td>
<td>Simulation</td>
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<td>INE315</td>
<td>Simulation Laboratory</td>
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<tr>
<td>MEE 212</td>
<td>Computer Applications in IME</td>
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<td>MEE 321</td>
<td>Material Properties &amp; Processes</td>
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Spring Semester (16 credits)

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>INE308</td>
<td>Introduction to Stochastic OR models</td>
<td>3</td>
</tr>
<tr>
<td>INE320</td>
<td>Engineering Economy I</td>
<td>3</td>
</tr>
<tr>
<td>INE346</td>
<td>Production Systems I</td>
<td>3</td>
</tr>
<tr>
<td>INE362</td>
<td>Manufacturing Processes</td>
<td>3</td>
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<tr>
<td>INE363</td>
<td>Manufacturing Lab</td>
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Summer Module II (5 credits)

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<td>ENG203</td>
<td>Fundamentals of Oral Communication</td>
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<td>GNE301</td>
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Summer Module II (4 credits)

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<tr>
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<td>LAC Elective</td>
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<tr>
<td>HLT201</td>
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YEAR III (38 CREDITS)

Fall Semester (15 credits)

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<td>GNE 305</td>
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<td>INE416</td>
<td>Ergonomics</td>
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<tr>
<td>INE417</td>
<td>Ergonomics Lab</td>
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<tr>
<td>INE442</td>
<td>Quality Control</td>
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<tr>
<td>INE446</td>
<td>Production Systems II</td>
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### Spring Semester (17 credits)

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<tr>
<td>INE428</td>
<td>Project Management</td>
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<tr>
<td>INE438</td>
<td>Facilities Planning and Logistics</td>
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<tr>
<td>MEE401</td>
<td>Energy Systems</td>
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<tr>
<td>INE—</td>
<td>Technical Elective (1/10) [Area 1]</td>
<td>3</td>
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<tr>
<td>INE—</td>
<td>Technical Elective (2/10) [Area 2]</td>
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<tr>
<td>INE—</td>
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### Summer Module II (6 credits)

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### YEAR IV (30 CREDITS)

#### Fall Semester (16 credits)

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<tr>
<td>INE591</td>
<td>Project 1</td>
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<td>INE593</td>
<td>Capstone Engineering Design</td>
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<tr>
<td>INE440</td>
<td>Advanced Statistics</td>
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<tr>
<td>INE—</td>
<td>Technical Elective (4/10) [Area 4]</td>
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<td>INE—</td>
<td>Technical Elective (5/10) [Free]</td>
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<td>INE—</td>
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#### Spring Semester (14 credits)

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<td>INE491</td>
<td>Seminar on Contemporary Issues</td>
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<tr>
<td>INE—</td>
<td>Technical Elective (7/10) [Free]</td>
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<tr>
<td>INE—</td>
<td>Technical Elective (8/10) [Free]</td>
<td>3</td>
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<tr>
<td>INE—</td>
<td>Technical Elective (9/10) [Free]</td>
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<tr>
<td>INE—</td>
<td>Technical Elective (10/10) [Free]</td>
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</tr>
</tbody>
</table>

### ENGINEERING ELECTIVE COURSES

The following table clarifies the "INE General Elective" requirements:

- The first column lists the approved courses' subjects
- The second column lists the excluded courses that DO NOT count as INE General Elective towards graduation.
COURSE DESCRIPTIONS

INE302 Linear Programming [3-0, 3 cr.]
This course covers the formulation of linear programming problems, simplex method, duality, and sensitivity analysis.
Prerequisites: 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.
Prerequisites: GNE333 Engineering Analysis I, COE212 Engineering Programming.

INE308 Stochastic OR models [3-0, 3 cr.]
Introduction to decision theory, risk, utility and decision trees.
Prerequisites: GNE331 Probability and Statistics.

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.
Prerequisites: Third year standing.

INE346 Production Systems I [3-0, 3 cr.]
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.
Prerequisites: GNE331 Probability and Statistics, INE307 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.
Prerequisites: GNE331 Probability and Statistics, and COE211 Computer Programming.

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.
Co-requisites: INE350 Simulation.

INE362 Manufacturing Processes [3-0, 3 cr.]
This course offers a balanced quantitative and qualitative coverage of manufacturing processes: casting, material removal, deformation, welding and assembly.
Course presents an overview of engineering materials, primary-manufacturing processes and includes projects tailored towards using manufacturing processes for obtaining functional products.
Prerequisites: MEE321 Material Properties and Processes.

INE363 Manufacturing Lab [0-3, 1 cr.]
Lab provides students with hands on experience in the use of traditional mechanical workshop equipment and software for manufacturing drawings generation. Students are also introduced to CNC Programming. Concurrent with INE362 Manufacturing Processes.

INE402 Optimization [3-0, 3 cr.]
This course covers queuing theory and models, linear programming, integer programming, transportation/assignment, inventory, annealing,
networks, dynamic programming, forecasting, and simulation techniques. 

Prerequisites: GNE333 Engineering Analysis I.

**INE407 Network Flow [3-o, 3 cr.]**

This course covers networks, shortest/longest path, decision trees, and network flow. 

*Prerequisites: INE307 Deterministic OR models or Consent of instructor.*

**INE410 Work Design and Measurement [3-o, 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-o, 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. 

*Prerequisites: Fourth-year standing.*

**INE415 Occupational Safety [2-o, 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-o, 4 cr.]**

This 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. 

*Prerequisites: Fourth year standing.*

**INE417 Ergonomics Lab [0 -3, 1 cr.]**

This lab provides students with hands on experience in the use of the state of the art ergonomics equipment and software for virtual human modeling. 

*Concurrent with INE416 Ergonomics*

**INE428 Project Management [3-o, 3 cr.]**

This 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.*

**INE436 Materials Handling [3-o, 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-o, 3 cr.]**

This course covers topics in flow measurements and analysis, flow planning, activity planning and relationships, layout planning, single facility location models minimax and minisum 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. 

*Prerequisites: 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, 2k factorial blocking and confounding, and forecasting.
Prerequisites: 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.
Prerequisites: INE440 Advanced Statistics and INE442 Quality Control I.

INE446 Production Systems II [3-0, 3 cr.]
This 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.
Prerequisites: INE440 Advanced Statistics and INE442 Quality Control I.

INE501 Linear Programming [3-0, 3 cr.]
Formulation of linear programming problems; Simplex method; Duality and sensitivity analysis.
Prerequisites: GNE333 Engineering Analysis I and consent of instructor.

INE502 Integer Programming [3-0, 3 cr.]
This course covers integer programming and general search techniques.
Prerequisites: INE307 Deterministic OR models or Consent of instructor.

INE503 Nonlinear Optimization [3-0, 3 cr.]
This course covers nonlinear/continuous optimization methods.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: GNE331 Probability and Statistics, and consent of instructor.
INE507 Advanced Stochastic Processes [3-0, 3 cr.]
Prerequisites: INE504 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.
Prerequisites: INE320 Engineering Economy I.

INE522 Cost Engineering and Control [3-0, 3 cr.]
Prerequisites: consent of instructor.

INE523 Financial Engineering [3-0, 3 cr.]
Prerequisites: INE504 Stochastic Processes and consent of instructor.

INE524 Advanced Financial Engineering [3-0, 3 cr.]
Prerequisites: INE507 Advanced Stochastic Processes and INE523 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 leveling, and least cost scheduling, including time-cost trade-off analysis, and schedule control.
Prerequisites: 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.
Prerequisites: consent of instructor or Fourth-year standing.

INE541 Quality Management Systems [3-0, 3 cr.]
This course covers Total Quality Management theories and application, Design for Six Sigma (DFSS) and six sigma approaches, DMAIC, Auditing, ISO standards and ISO certification.
Prerequisites: 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.
Prerequisites: Consent of instructor and Fourth year standing.
INE544 Inventory Analysis [3-o, 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.
Prerequisites: INE446 Production Systems II or Consent of instructor.

INE548 Machine Scheduling [3-o, 3 cr.]
This course covers basic single machine problem (BSMP), flow shop scheduling with setup cost (TSP), and vehicle routing.
Prerequisites: INE446 Production Systems II or Consent of instructor.

INE551 Advanced Simulation [3-o, 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.
Prerequisites: INE350 Simulation, INE346 Production Systems I, Fourth-year standing.

INE563 CAD/CAM [3-o, 3 cr.]
This course introduces students to the use of product lifecycle management (PLM) software packages for sketching, drafting, modeling, assembly and prototyping. Course includes projects tailored towards using software to the design and manufacturing of a physical product.
Prerequisites: INE362 Manufacturing Processes

INE567 Time Series Control & Process Adjustment [3-o, 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-o, 3 cr.]
This course covers selected engineering project, using acquired technical knowledge, formal report, and presentation.
Prerequisites: Fifth-year standing and INE362 Manufacturing Processes, INE350 Simulation, INE446 Production Systems II, INE438 Facilities Planning and Layout, INE428 Project Management, GNE305 Professional Ethics.

INE592 Project II [3-o, 3 cr.]
This course covers advanced engineering project, using acquired technical knowledge, formal report, and presentation.
Prerequisites: instructor’s consent and fifth-year standing.

INE593 Capstone Engineering Design [1-o, 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.
Prerequisites: course to be taken concurrently 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.
Prerequisites: instructor’s consent and fourth-year standing.
Bachelor of Engineering (B.E.) in Mechanical Engineering

The Bachelor of Engineering degree program in Mechanical Engineering is accredited by the Engineering Accreditation Commission of ABET (www.abet.org).

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.

GOALS OF CURRICULUM:

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.

Student Outcomes
The students will acquire in their matriculation through the program, the following skills, knowledge, and behaviors:

1. An ability to apply knowledge of mathematics, science and engineering;
2. An ability to design and conduct experiments, as well as to analyze and interpret data;
3. 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;
4. An ability to function on multidisciplinary teams;
5. An ability to identify, formulate and solve engineering problems;
6. An understanding of professional and ethical responsibility;
7. An ability to communicate effectively;
8. A broad education necessary to understand the impact of engineering
solutions in a global, economic, environmental and societal context;
9. Recognition of the need and the ability to engage in lifelong learning;
10. Knowledge of contemporary issues;
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

CURRICULUM

YEAR I (42 CREDITS)

Fall Semester (16 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>COE212</td>
<td>Engineering Programming</td>
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<tr>
<td>ENG202</td>
<td>Sophomore Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>CIE200</td>
<td>Statics</td>
<td>3</td>
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<tr>
<td>MEE 211</td>
<td>Engineering Graphics</td>
<td>1</td>
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<tr>
<td>MTH201</td>
<td>Calculus III</td>
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<tr>
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Spring Semester (16 credits)

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<tr>
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<tbody>
<tr>
<td>ELE305</td>
<td>Introduction to Electrical Eng.</td>
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<tr>
<td>ETH 201</td>
<td>Moral Reasoning</td>
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<tr>
<td>ARA20</td>
<td>Appreciation of Arabic Literature</td>
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<tr>
<td>MTH304</td>
<td>Differential Equations</td>
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<tr>
<td>MTH206</td>
<td>Calculus IV</td>
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<td>MEE241</td>
<td>Dynamics</td>
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Summer Module I (6 credits)

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<tr>
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<tbody>
<tr>
<td>GNE333</td>
<td>Engineering Analysis I</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>PED2—</td>
<td>Physical Education</td>
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YEAR II (41 CREDITS)

Fall Semester (15 credits)

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<tbody>
<tr>
<td>MEE311</td>
<td>Fluid Mechanics</td>
<td>3</td>
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<tr>
<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 Design</td>
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<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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<tbody>
<tr>
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<td>Heat Transfer</td>
<td>3</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>
<td>3</td>
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<tr>
<td>MEE320</td>
<td>Strength of Materials</td>
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<tr>
<td>MEE341</td>
<td>Kinematics and Dynamics of Linkages</td>
<td>3</td>
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<tr>
<td>MEE332</td>
<td>Manufacturing Processes</td>
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<td>MEE333</td>
<td>Manufacturing Lab</td>
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Summer Module II (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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<tr>
<td>HLT201</td>
<td>Basic Health</td>
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YEAR III (38 CREDITS)

Fall Semester (15 credits)

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>GNE305</td>
<td>Professional Ethics</td>
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<td>Science Elective</td>
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<tr>
<td>MEE442</td>
<td>Mechanical Vibrations</td>
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### Year I (12 Credits)

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<th>Course Code</th>
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<tr>
<td>MEE443</td>
<td>Mechanical Vibrations Lab</td>
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<tr>
<td>MEE445</td>
<td>Control Systems</td>
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<td>MEE446</td>
<td>Control Systems Lab</td>
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<tr>
<td>MEE444</td>
<td>Thermal Systems Design</td>
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### Spring Semester (17 credits)

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</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>
<td>3</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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### Year IV (29 Credits)

#### Fall Semester (14 credits)

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<td>MEE593</td>
<td>Capstone Engineering Design</td>
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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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<tr>
<td>MEE515</td>
<td>Refrigeration and Air Conditioning</td>
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<td>MEE516</td>
<td>Refrigeration and Air Conditioning Lab</td>
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#### Spring Semester (15 credits)

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<tbody>
<tr>
<td>——</td>
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<tr>
<td>——</td>
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### Technical Electives (12 credits)

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<th>Course Title</th>
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<tr>
<td>GNE334</td>
<td>Engineering Analysis II</td>
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<tr>
<td>MEE407</td>
<td>Internal Combustion Engines</td>
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<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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<tr>
<td>MEE505</td>
<td>Solar Systems</td>
<td>3</td>
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<tr>
<td>MEE513</td>
<td>Gas Turbines</td>
<td>3</td>
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<tr>
<td>MEE515</td>
<td>Refrigeration and Air-Conditioning</td>
<td>3</td>
</tr>
<tr>
<td>MEE533</td>
<td>Advanced CAD/CAM</td>
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<tr>
<td>MEE543</td>
<td>Acoustics and Vibration Control</td>
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<tr>
<td>MEE550</td>
<td>Mechatronics</td>
<td>3</td>
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<tr>
<td>MEE590</td>
<td>Energy Audit</td>
<td>3</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>
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**Or any other approved technical elective course by the department.**

### Science Electives (6 credits)

<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>BIO200</td>
<td>Basic Biology</td>
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<tr>
<td>CHM200</td>
<td>Essentials of Chemistry</td>
<td>3</td>
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<tr>
<td>CHM201</td>
<td>Chemical Principles</td>
<td>3</td>
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<tr>
<td>BIO201</td>
<td>General Biology</td>
<td>4</td>
</tr>
<tr>
<td>PHY201</td>
<td>Electricity and Magnetism</td>
<td>4</td>
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</tbody>
</table>
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.
Prerequisites: COE212 Engineering Programming and GNE333 Engineering Analysis

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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: Sophomore standing.

MEE332 Manufacturing Processes [3-0, 3 cr.]
This course offers a balanced quantitative and qualitative coverage of manufacturing processes: casting, material removal, deformation, welding and assembly. Course presents an overview of engineering materials, primary-manufacturing processes and includes projects tailored towards using manufacturing processes for obtaining functional products.
Prerequisites: MEE321 Material Properties and Processes.
MEE333 Manufacturing Lab [0-3, 1 cr.]
Lab provides students with hands-on experience in the use of traditional mechanical workshop equipment and software for manufacturing drawings generation. Students are also introduced to CNC Programming.
*Concurrent with MEE332 Manufacturing Processes.*

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.
*Prerequisites: MEE 241 Dynamics, MEE351 Computer Aided Design*

MEE351 Computer Aided Design [2-2, 3 cr.]
This course covers the numerical design chain encompassing conceptual design techniques & methodologies, sketching, geometrical modeling, design specifications and product assembly. Course includes projects tailored towards using CAD software for designing mechanical engineering products.
*Prerequisites: MEE211 Engineering Graphics*

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.
*Prerequisites: ELE305 Introduction to Electrical Engineering, GNE331 Probability and Statistics.*

MEE391 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.
*Prerequisites: ELE305 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.
*Prerequisites: MTH304 Differential Equations, MEE311 Fluid Mechanics.*

MEE404 Heat Transfer Lab [0-3, 1 cr.]
This course entails laboratory experiments in heat transfer.
*Prerequisites: 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.
*Prerequisites: MEE302 Energy Conversion.*

MEE414 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.
*Prerequisites: MEE403 Heat Transfer.*

MEE421 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, beam and frame elements are covered in solid mechanics applications. Computer program development for the solution of 1D problems. Use of state of the art commercial finite element software (COMSOL Multiphysics).
*Prerequisites: GNE333 Engineering Analysis I, and MEE320 Strength of Materials.*
MEE422 Mechanical Engineering Design [3-0, 3 cr.]
This course covers application of engineering design process to the design of mechanical components, subsystems and machines, problem-solving techniques, ethics, and patents.
Prerequisite: MEE320 Strength of Materials.

MEE442 Mechanical Vibrations [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.
Prerequisites: MEE341 Kinematics and Dynamics of Linkages, and MTH304 Differential Equations

MEE443 Mechanical Vibrations Lab [0-3, 1 cr.]
This course entails laboratory experiments in machine dynamics.
Prerequisites: GNE 331 Probability and Statistics; Concurrent with MEE442 Mechanical Vibrations.

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.
Prerequisites: GNE333 Engineering Analysis I; Concurrent with MEE442 Mechanical Vibrations.

MEE446 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.
Prerequisites: MEE391 Instrumentations and Measurements 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.
Prerequisites: 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.
Prerequisites: Fifth-year standing and the consent of the instructor.

MEE503 Power Plant Engineering [3-0, 3 cr.]
This course covers steam and gas turbine power cycles, modern power plants, combined power plants, energy and availability analysis, economics of power generation, and design problems and field trips.
Prerequisites: MEE302 Energy Conversion and MEE 414 Thermal Systems Design.

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.
Prerequisites: MEE403 Heat Transfer.

MEE513 Gas Turbines [3-0, 3 cr.]
This course covers the design and performance of stationary and propulsion gas turbines.
Prerequisites: 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.
Prerequisites: 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 Advanced CAD/CAM [3-0, 3 cr.]
This course covers the application of the design process to design and manufacture engineering products throughout the different steps of specification, behavioral modeling, design analysis, material selection, prototyping, manufacturing and testing. The course requires extensive usage of PLM software packages to the design and manufacturing of a mechanical design problem. 
Prerequisites: MEE332 Manufacturing Processes, MEE351 Computer Aided Design; 5th year standing

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.
Prerequisites: MEE442 Mechanical Vibrations.

MEE550 Mechatronics [3-0, 3 cr.]
Mechatronics is an interdisciplinary engineering area that comprises the integration of mechanical engineering, electronics, control systems, and computer science, which together contribute to design smart products and processes. This course will cover principles and interfacing techniques of several sensors and actuators; rapid prototyping of closed-loop computer controlled electromechanical systems; analysis, design, and implementation of Mechatronic systems. Basic electronics, DC motors, stepper motors, H-bridges, various sensors, signal conditioning, PIC microcontrollers, PLCs, and others topics will be covered in class lectures and lab assignments.
Prerequisites: MEE391 Instrumentation and Measurements.

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.
Prerequisites: MEE403 Heat Transfer.

MEE591 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 MEE332 Manufacturing Processes, MEE414 Thermal Design Systems, MEE422 Mechanical Engineering Design, GNE305 Professional Ethics, INE428 Project Management

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.

MEE593 Capstone Engineering Design [1-0, 1 cr.]
This 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.
Prerequisites: Fifth-year standing and the consent of the instructor.
Packaging Minor (PM)

The packaging minor at LAU is an interdisciplinary field in which scientific and design principles are applied to analyze, develop and produce packages that inform, communicate, advertise, contain, protect, preserve and transport a product. The packaging minor includes the study of products, package materials, materials behavior, structures, methods, machinery and most common types of processes used for package design, production, and transportation. 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.

GOALS OF CURRICULUM

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
1. The ability to apply scientific and design principles to analyze, develop and produce packages that protect, preserve and transport a product;
2. The ability to apply design principles to inform, to communicate, and to advertise a product;
3. Knowledge of materials, and materials’ behavior, structures, methods, machinery, and the most common types of processes used for package design, production, and transportation;
4. Hands-on experience in testing, analyzing and designing packages.

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</th>
<th>Title</th>
<th>Credits</th>
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<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>
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Elective Courses (6 credits)

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</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</td>
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Design Electives

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</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</td>
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Engineering Electives

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<tr>
<td>PKG/INE575</td>
<td>Corrugated Packaging</td>
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<td>PKG/INE576</td>
<td>Rigid Plastic Packaging</td>
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<td>PKG/INE578</td>
<td>Food Preservation Packaging</td>
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<tr>
<td>PKG/INE579</td>
<td>Special Topic Course in Packaging</td>
<td>3</td>
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</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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: PKG/INE570 Introduction to Packaging.

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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: The consent of the instructor.

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.
Prerequisites: Second-year standing.

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.
Prerequisites: 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.
Prerequisites: 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.
Prerequisites: MEE220 Engineering Graphics or ARC251 Introduction to Computer Graphics or DES251 Introduction to Computer Graphics.

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.
Prerequisites: Consent of the instructor.
Master of Science (M.S.) in Industrial Engineering and Engineering Management

The Master of Science in Engineering in Industrial Engineering and Engineering Management program responds to a need, at the country level, for engineers that can manage and improve integrated systems of people, materials, information, facilities, and technology. The graduate program in Industrial Engineering and Engineering Management, with emphasis in Engineering Management, draws on LAU’s substantial, and growing, experience in undergraduate Industrial Engineering education, to provide engineers, coming from other engineering disciplines, with a significant opportunity to specialize in the management, and the optimization, of engineering systems.

The graduate program in Industrial Engineering and Engineering Management is essentially a hybrid program that is built by combining specialized knowledge bases, leading to a non-traditional interdisciplinary education. The knowledge bases, referred to hereunder as concentrations areas, consist in part of elective Graduate-level courses from Industrial, Mechanical, and Civil Engineering programs, and Graduate courses from Computer Science, Economics, Business, and International Affairs graduate programs.

MISSION

The mission of the graduate program in Industrial Engineering and Engineering Management is to capitalize on the skills and theories learned in disciplines other than industrial engineering, to uniquely prepare students for successful engineering management careers.

GOALS OF CURRICULUM

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, nontraditional, 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:

1. The ability to use the knowledge of math and science to model, and to improve, complex integrated systems of people, materials, facilities or technology;
2. The broad knowledge that encompasses the fields of production systems and manufacturing, construction engineering and management, and finance and economics;
3. The ability to use data analysis, and optimization, for decision making;
4. The ability to provide support for systems engineering and project management.
5. The ability to function as a professional in the discipline;
6. The ability to grow through a lifelong acquisition of knowledge;
7. 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 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:
8. 30 hours of graduate level courses;
9. At least 18 hours in engineering courses;
10. No more than six credit hours in project-based courses or thesis work;
11. At least six hours in Optimization;
12. At least nine hours from Production Systems and Manufacturing, or Infrastructure and Construction Management;
13. At least 3 hours from Finance and Economics.

The remaining courses may be taken from any of the following concentration areas:
14. Optimization;
15. Production Systems and Manufacturing;
16. Infrastructure and Construction Management;
17. Finance and Economics;
18. 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;
2. Production Systems and Manufacturing;
3. Infrastructure and Construction Management;
4. Finance and Economics;
5. Software.
### CA 1: Optimization

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>INE700</td>
<td>Advanced Statistics</td>
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</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>
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<tr>
<td>INE705</td>
<td>Non-Linear Programming</td>
<td>3</td>
</tr>
<tr>
<td>INE706</td>
<td>Decision Analysis</td>
<td>3</td>
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<tr>
<td>INE707</td>
<td>Network Flow</td>
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<tr>
<td>INE708</td>
<td>Queueing Theory and Applications</td>
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<td>INE709</td>
<td>Advanced Stochastic Processes</td>
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<tr>
<td>INE711</td>
<td>Advanced Simulation</td>
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</tr>
<tr>
<td>INE810</td>
<td>Special Topics in Optimization</td>
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### CA 2: Production Systems and Manufacturing

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<td>INE742</td>
<td>Industrial Quality Control</td>
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<td>INE743</td>
<td>Reliability Evaluation of Engineering</td>
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<tr>
<td>INE744</td>
<td>Inventory Analysis</td>
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<tr>
<td>INE745</td>
<td>Facilities Planning and Layout</td>
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<tr>
<td>INE746</td>
<td>Materials Handling</td>
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<tr>
<td>INE748</td>
<td>Machine Scheduling</td>
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<tr>
<td>INE749</td>
<td>Transportation and Supply Chain</td>
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<tr>
<td>INE761</td>
<td>Computer Aided Design/Computer Aided</td>
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<td>Manufacturing</td>
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<td>INE762</td>
<td>Analysis of Automated Manufacturing Systems</td>
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<td>INE763</td>
<td>Advanced Information Technology for</td>
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<td>Industrial &amp; Manufacturing Engineering</td>
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<td>INE764</td>
<td>Time Series Control &amp; Process</td>
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<td>INE840</td>
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### CA 3: Infrastructure and Construction Management

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<td>CIE762</td>
<td>Transportation Engineering II</td>
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<tr>
<td>CIE785</td>
<td>Risk and Natural Hazard Management</td>
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<tr>
<td>CIE786</td>
<td>Highway Design and Management</td>
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<td>CIE787</td>
<td>Concrete and Steel Construction</td>
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<td>CIE788</td>
<td>GIS and Remote Sensing</td>
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<tr>
<td>CIE790</td>
<td>Construction Methods</td>
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<tr>
<td>INE721/CIE789</td>
<td>Cost Engineering and Control</td>
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</tr>
<tr>
<td>INE722/CIE782</td>
<td>Infrastructure Management</td>
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<tr>
<td>INE724/CIE784</td>
<td>Quality Management Systems</td>
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<tr>
<td>INE727</td>
<td>Project Scheduling</td>
<td>3</td>
</tr>
<tr>
<td>INE729</td>
<td>Project Contracting</td>
<td>3</td>
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<tr>
<td>INE820</td>
<td>Special Topics in Infrastructure &amp;</td>
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<td>Construction Management</td>
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### CA 4: Finance and Economics

<table>
<thead>
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<th>Course</th>
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<tbody>
<tr>
<td>BUS811</td>
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<tr>
<td>BUS821</td>
<td>Financial Accounting</td>
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<tr>
<td>BUS836</td>
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<td>BUS837</td>
<td>International Business</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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<td>INE771</td>
<td>Financial Engineering</td>
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<td>Advanced Financial Engineering</td>
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<td>INE781</td>
<td>Engineering Economy II</td>
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<tr>
<td>INE870</td>
<td>Special Topics in Finance &amp; Economics</td>
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<td>COE716/CSC723</td>
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<td>COE717</td>
<td>Parallel Programming and Cluster</td>
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<tr>
<td>COE718/CSC450</td>
<td>Computer Graphics</td>
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<tr>
<td>COE741/CSC460</td>
<td>Artificial Intelligence</td>
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<td>COE742</td>
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<tr>
<td>COE752/CSC711</td>
<td>Design and Analysis of Algorithms</td>
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<tr>
<td>COE753/CSC714</td>
<td>Heuristic Optimization</td>
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<td>CSC475</td>
<td>Advanced Topics in Databases</td>
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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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**Other Courses**

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<tr>
<td>INE700</td>
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<td>INE701</td>
<td>Linear Programming [3-0, 3 cr.]</td>
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<td>INE702</td>
<td>Integer Programming [3-0, 3 cr.]</td>
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<tr>
<td>INE703</td>
<td>Dynamic Programming [3-0, 3 cr.]</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 setting and correcting, 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.

*Prerequisites: INE701 Linear Programming.*

**INE704 Stochastic Processes [3-0, 3 cr.]**
This course covers Markov decision processes, and chains stochastic processes.

**INE705 Non-linear Programming [3-0, 3 cr.]**
This course covers nonlinear/continuous optimization methods.

**INE706 Decision Analysis [3-0, 3 cr.]**
This course covers decision analysis, game theory, Bayesian decision theory, and utility theory.

**INE707 Network Flow [3-0, 3 cr.]**
This course covers networks, shortest/longest path, decision trees, and network flow.

**INE708 Queuing Theory and Applications [3-0, 3 cr.]**
This course is an introduction to congestion and related stochastic models. Topics include birth and death models, measures of performance, Little’s Law, conservation law, PASTA, work in system, service disciplines and priorities, regenerative processes, stability and stationary distributions, approximations and bounds. Examples from telecommunications, production, inventory, and computer science, are covered.

**INE709 Advanced Stochastic Processes [3-0, 3 cr.]**
This course is an introduction to martingales in continuous time. Brownian motion: construction, basic properties, sample paths. Stochastic integration, Ito’s rule, and applications, are discussed. The course is an introduction to stochastic differential equations and diffusion processes. Applications to financial economics: option pricing, and consumption/investment problems, are also covered.

*Prerequisites: INE704 Stochastic Processes.*
INE711 Advanced Simulation [3-0, 3 cr.]
This course covers an analysis of simulation data: input and output, validation and verification of system design, comparing alternative system configuration, simulation of complex systems, and case studies.

INE721 Cost Engineering and Control [3-0, 3 cr.]
This course covers cost engineering for construction organizations, projects, and operations, it also covers construction financing, break-even, profit, and cash flow analyses, capital budgeting, equipment cost, and procurement decisions. Construction, financial accounting, cost accounting, cost control systems, and databases, as well as cost indices, parametric estimates, unit price proposals, measuring work, and settling claims are also covered. 
Prerequisites: INE729 Project Contracting.

INE722 Infrastructure Management [3-0, 3 cr.]
This course covers the general methods of engineering systems management, and the different types of infrastructure. The course analyzes possible financing, and engineering, solutions and alternatives, and the overall management during the life cycle of the project.

INE724 Quality Management Systems [3-0, 3 cr.]
This course is an introduction to quality management systems, ISO 9000, 14000, Total Quality Management, and the applications of QMS to the engineering, and management, of large projects, systems, and organizations.
Prerequisites: 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-o, 3 cr.]
This course covers the Basic Single Machine Problem (BSMP); flow shop scheduling with setup cost (TSP); vehicle routing.
Prerequisites: INE302 Linear Programming.

INE749 Transportation and Supply Chain Systems [3-o, 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.
Prerequisites: Consent of the instructor.

INE761 CAD/CAM [3-o, 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-o, 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-o, 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-o, 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-o, 3 cr.]
This course is an introduction to financial models: mean-variance analysis, portfolio selection, separation theorems, capital asset pricing, arbitrage pricing, derivative security pricing, bond management, modeling, analysis, and computation of derivative securities. Applications of stochastic calculus and stochastic differential equations are covered, as well as numerical techniques: finite-difference, binomial method, and Monte Carlo simulation.
Prerequisites: INE704 Stochastic Processes.

INE772 Advanced Financial Engineering [3-o, 3 cr.]
This course is a review of basic mathematics, including renewal theory and stochastic calculus, Martingale approach to Black-Scholes formula, optimal stopping and American options, pricing of continuous and discrete exotic options, term structure models and pricing of bond options, jump diffusion models, and applications, including pricing of real and electricity options, and hedging of real options.
Prerequisites: INE709 Advanced Stochastic Processes.

INE781 Engineering Economy II [3-o, 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 sequentia1 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-o, 3 cr.]
This course is an applied design course. Design reviews and a final oral presentation with a written report are required.
Prerequisites: Consent of the instructor.
INE810 Special Topics in Optimization [3-0, 3 cr.]
This course covers topics of current interest in optimization, selected by instructor.
Prerequisites: Consent of the instructor.

INE820 Special Topics in Infrastructure & Construction Management [3-0, 3 cr.]
This course covers topics of current interest in infrastructure, and construction management, selected by instructor.
Prerequisites: Consent of the instructor.

INE840 Special Topics in Production Systems & Manufacturing [3-0, 3 cr.]
This course covers topics of current interest in production systems and manufacturing, selected by instructor.
Prerequisites: Consent of the instructor.

INE870 Special Topics in Finance & Economics [3-0, 3 cr.]
This course covers topics of current interest in finance, and economics, selected by the Instructor.
Prerequisites: Consent of the instructor.

INE899 Thesis [6-0, cr.]
This course is an independent directed study, design, research in the field of interest of the student or Instructor.

GENERAL ENGINEERING COURSES

GNE212 Engineering Mechanics [3-0, 3 cr.]
This course covers the review of vector algebra, forces systems resultants, equilibrium of particles and rigid bodies, internal forces, kinematics and kinetics of particles, systems of particles and rigid bodies.
Prerequisites: Sophomore Standing

GNE301 Professional Communication [2-0, 2 cr.]
This course covers the English language proficiency, business letter writing, memo writing, report presentation and writing and the use of presentation software.
Prerequisites: ENG202 Sophomore Rhetoric.

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.
Prerequisites: 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 nonlinear regression.
Prerequisites: MTH201 Calculus III.

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.
Prerequisites: MTH201 Calculus III.
**DEAN**
Youssef G. Comair, M.D., FRCSC

**ASSOCIATE DEANS**
Zeinat Hijazi, M.B.B.ch, DCH, MRCP, FRCP, MRCPC, FRCPCH, Medical Education
Jacques E. Mokhbat, M.D., Graduate Medical Education

**ASSISTANT DEAN**
Sola Bahous, M.D., Ph.D., Clinical Affairs

**PROGRAMS**
The School of Medicine offers a four-year study program leading to the Medical Doctor (M.D.) degree.

**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 that 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**
1. Demonstrate ethical and professional behavior in the practice of medicine;
2. Provide patient-centered care;
3. Employ evidence-based practice;
4. Become a lifelong learner;
5. Apply critical thinking in healthcare practice;
6. Promote interdisciplinary and inter-professional practice.

The School’s academic program is competency-based and these competencies will be achieved through a four-year medical curriculum. They are delivered under four themes in the pre-clinical years (Med I and Med II) and under five competencies in the clinical years (Med III and Med IV).

**PRE-CLINICAL YEARS (MED I AND MED II) THEMES:**
1. Basic and Clinical Science Theme
2. Clinical Competence Theme
3. Professional and Behavioral Theme
4. Social Medicine and Public Health Theme

**CLINICAL YEARS (MED III AND MED IV) COMPETENCIES:**
1. Physician as Scientist
2. Physician as Communicator
3. Physician as Care giver
4. Physician as Advocate
5. Physician as Professional

1. **Physician as Scientist:**
   a. Possess a solid foundation of scientific and medical knowledge and applies this knowledge to the care of patients and populations.
   The following are behaviors or practices that the student adopts and
applies to demonstrate competence:
- Describes the normal structure and function of the human body;
- Explains pathologic and pathophysiologic processes leading to alterations in normal structure and function of the human body for major causes of illness;
- Describes population based factors that affect disease prevalence, course and treatment;
- Describes patterns of diseases at different levels of acuity: emergency, acute and chronic;
- Discusses social determinants of health and illness;
- Explains principles of pharmacology and major categories of drugs, their actions, interactions, contraindications and clinical uses;
- Explains the principles underlying normal behavior and mental diseases;
- Solves basic clinical problems using knowledge of mechanisms of disease.

b. Continues to seek, access, analyze and apply knowledge to a changing environment. Behaviors that demonstrate competence:
- Contributes new knowledge to the healthcare team;
- Utilizes evidence-based medicine for patient management;
- Seeks appropriate resources for improving quality of care;
- Critically analyzes literature.

2. Physician as Communicator:
Communicates effectively with patients, their families, colleagues and the healthcare team.
Behaviors that demonstrate competence:
- Develops effective patient-physician relationship, showing respect and empathy;
- Listens attentively and elicits appropriate data in history taking;
- Elicits pertinent social, cultural and economic determinants of health;
- Effectively exchanges data both verbally and in writing with members of the health care team;
- Demonstrates ability to use appropriate communication skills in discussing diagnosis and disease management with patients;
- Is an active valued member of the healthcare team;
- Presents patient information clearly, accurately and in a timely fashion;
- Demonstrates ability to use all communication skills both verbally and in writing;
- Involves patient and family in developing healthcare plan;
- Educates patient on illness and care plan;
- Practices coordinated care among members of the healthcare team;
- Cooperates with patients and healthcare professionals from diverse cultural backgrounds.

3. Physician as Care Giver:
a. Practices evidence-based medicine in the care of patients.
Behaviors that demonstrate competence:
- Recognizes life-threatening situations and delivers basic emergency care for such patients within or outside healthcare facilities;
- Performs both complete and focused physical examination;
- Synthesizes data to formulate a differential diagnosis;
- Describes the appropriate use of laboratory and radiologic techniques in identifying health problems;
- Orders (Mock) appropriate diagnostic tests in correct sequence;
- Describes the appropriate use of laboratory and radiologic techniques in identifying health problems;
- Writes patient care and management plan based on scientific principles, evidence based approach and guidelines from scientific societies in a compassionate manner;
- Discusses both pharmacological and non-pharmacological management plans;
- Re-evaluates patient status and management plan;
- Meets all technical skills requirements;
- Writes discharge summary and plan;
- Applies prescription skills to discharge planning and medication reconciliation.

b. Utilizes the full spectrum of health care delivery: acute, chronic, preventive, rehabilitative, public health and social services to optimize individual and population based care. Behaviors that demonstrate competence:
- Seeks care solutions through various forms of health services;
- Describes various levels of care for each patient;
- Describes healthcare delivery systems in Lebanon and other countries;
- Integrates knowledge of social, cultural and behavioral factors as well as preventive measures and cost effective analysis to advance patient well-being.

4. Physician as Advocate:
Advocates for improved health care: access, health outcomes, health promotion and disease prevention, community services. Behaviors that demonstrate competence:
- Identifies social determinants of health;
- Seeks solutions to barriers for access to health care;
- Recognizes the impact of money and industry on the practice of medicine;
- Discusses community-driven plans for health promotion and disease prevention;
- Discusses the clinical encounter from a cross-disciplinary perspective.

5. Physician as Professional:
a. Consistently practices and models ethical and professional behavior. Behaviors that demonstrate competence:
- Acts in the patient’s best interest;
- Demonstrates reliability and responsibility, and performs duties in a timely and dependable manner;
- Follows rules of health care facility and code of conduct;
- Demonstrates respect and application of policies that govern clinical practice in the country;
- Respects patients, family, colleagues, other health care providers and employees;
- Respects rights of patient and family;
- Applies ethical principles to decision making in patient care;
- Educates patient and family on informed consent;
- Describes Institutional Review Board (IRB) process for research.

b. Reflects on practice and ways to improve self, patient safety and quality. Behaviors that demonstrate competence:
- Analyzes personal experience, acknowledges gaps and works on ways to improve them;
- Discusses medical errors and quality improvement opportunities, and participates in solutions to reduce them;
- Writes critical incident reports;
- Demonstrates responsibility for continuous learning and personal growth and development;
- Identifies areas of weakness and educational needs, and develops an improvement plan using appropriate learning resources.

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:

a. Integrated;

b. Systems-based;
c. Relies on problem solving for learning (Problem-Based Learning);
d. Promotes self-directed learning;
e. Includes early clinical exposure.

Methods of instruction include:
• Lectures;
• Problem-based learning;
• Laboratory work;
• Simulations;
• Tutorials;
• Case studies;
• Self-directed learning;
• Clinical experience with real as well as standardized patients;
• Bed-side teaching.

COURSE DESCRIPTIONS AND STUDY PLAN

MEDICINE I

IMS711: The Foundations of Medicine (13 weeks):
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 with 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.

<table>
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<th>Course Title</th>
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<td>IMS721</td>
<td>Hematology &amp; Immunology</td>
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<tr>
<td>IMS731</td>
<td>Endocrinology &amp; Reproductive Medicine</td>
<td>8 weeks</td>
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<td>IMS741</td>
<td>Nephrology</td>
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<td>IMS761</td>
<td>Pulmonary System</td>
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MEDICINE II

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<td>Gastrointestinal System</td>
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<tr>
<td>IMS771</td>
<td>Cardiovascular System</td>
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<tr>
<td>IMS751</td>
<td>Musculoskeletal System &amp; Dermatology</td>
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<tr>
<td>IMS791</td>
<td>Neurosciences</td>
<td>11 weeks</td>
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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 clerkships in medicine, surgery, pediatrics, obstetrics and gynecology and 4-week clerkships in psychiatry, primary care and neurology. The rotations will consist of in-patient and ambulatory, clinical and community experiences.

1. Internal Medicine (8 week clerkship);
2. Obstetrics and Gynecology (8 week clerkship);
3. Pediatrics (8 week clerkship);
4. Surgery (8 week clerkship);
5. Neurology (4 week clerkship);
6. Primary Care (4 week clerkship);
7. Psychiatry (4 week clerkship);
8. Longitudinal Course: It is a multidisciplinary course that is delivered once per week to all Med III students as a class.
MEDICINE IV
Medicine IV consists of required rotations, selective rotations and elective rotations. The required rotations will be in the areas of emergency department (4 weeks), intensive care unit (4 weeks), anesthesiology (2 weeks), pathology (2 weeks), otolaryngology (2 weeks), and ophthalmology (2 weeks). The selective rotations include 4 weeks in medicine subspecialties and 4 weeks in surgical subspecialties. Electives (20 weeks) will be offered in areas across the spectrum of medical studies including all specialties and subspecialties, public health and community medicine, whether local or international. Electives will also be offered in research.

1. Emergency Department (4 week clerkship);
2. Intensive Care Unit (4 week clerkship);
3. Anesthesiology (2-week clerkship);
4. Ophthalmology (2-week clerkship);
5. Otolaryngology (2-week clerkship);
6. Pathology (2-week clerkship);
7. Selective in Medicine: It is a 4-week clerkship where the students can choose to rotate in various Internal Medicine specialties. The goals are listed separately for each selective rotation.
8. Selective in Surgery: It is a 4-week clerkship where the students can choose to rotate in various Surgery specialties. The goals are listed separately for each selective rotation.
9. Electives: Students are expected to satisfactorily complete 20 weeks of electives in various medical and surgical specialties; two weeks being the minimum slot for an elective. The electives could be done intramurally, at UMC–RH (main LAU teaching hospital) or at any affiliated hospital, or extramurally (national or international) after the approval of the Dean’s Office.
10. Continuity Experience Clerkship: The Continuity Experience is a longitudinal program designed to introduce a long-term exposure of medical students to an individual patient or family throughout the duration of Med III and Med IV. Selected individuals will be those with chronic diseases or possibly a pregnant woman or newborn.

ACADEMIC POLICIES
The School of Medicine follows most of the university-wide policies. However, the school has a specific grading system and academic policies that are available in the School of Medicine Student Handbook.

ADMISSION REQUIREMENTS
Admission to the LAU School of Medicine is based on a composite evaluation of the following:

1. Overall grade average and GPA score on graduation (bachelor’s degree in science or art (B.S./B.A.);
2. Overall average on the required core courses in science (34 credits) [see Requirements below];
3. Scores on the MCAT examination;
4. Performance on the admission interview;
5. Lebanese Baccalaureate Diploma (all sections) or its equivalent;
6. Admission interview;
7. English language requirement.

Required core courses in science for pre-medical students:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO201</td>
<td>General Biology I</td>
<td>4</td>
</tr>
<tr>
<td>BIO202</td>
<td>General Biology II</td>
<td>4</td>
</tr>
<tr>
<td>CHM201</td>
<td>Chemical Principles</td>
<td>3</td>
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<tr>
<td>BIO321</td>
<td>Genetics</td>
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<tr>
<td>BCH301</td>
<td>Biochemistry</td>
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<tr>
<td>CHM311</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
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<td>CHM312</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>Course</td>
<td>Title</td>
<td>Units</td>
</tr>
<tr>
<td>----------</td>
<td>------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>CHM313</td>
<td>Organic Chemistry I Lab</td>
<td>1</td>
</tr>
<tr>
<td>CHM314</td>
<td>Organic Chemistry II Lab</td>
<td>1</td>
</tr>
<tr>
<td>PHY301</td>
<td>Classical Physics for Life Sciences</td>
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<tr>
<td>PHY305</td>
<td>Modern Physics for Life Sciences</td>
<td>3</td>
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<tr>
<td>PHY306</td>
<td>Modern Physics for Life Sciences Lab</td>
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Strongly recommended courses for pre-medical students:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>MTH200</td>
<td>Mathematics for Life Sciences</td>
<td>3</td>
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<tr>
<td>STA205</td>
<td>Biostatistics</td>
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<tr>
<td>BIO343</td>
<td>Anatomy and Physiology</td>
<td>3</td>
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<td>BIO344</td>
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<tr>
<td>BIO401</td>
<td>Developmental Biology</td>
<td>4</td>
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<tr>
<td>BIO311</td>
<td>Microbiology</td>
<td>3</td>
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<td>BIO312</td>
<td>Microbiology Lab</td>
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<tr>
<td>BIO420</td>
<td>Virology and Immunology</td>
<td>3</td>
</tr>
<tr>
<td>BIO322</td>
<td>Genetics Lab</td>
<td>1</td>
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</table>

Recommended courses for pre-medical students:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>CHM202</td>
<td>Analytical Chemistry</td>
<td>3</td>
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<tr>
<td>BIO410</td>
<td>Biotechnology</td>
<td>3</td>
</tr>
<tr>
<td>BIO331</td>
<td>Ecology</td>
<td>4</td>
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</table>

**GRADUATION REQUIREMENTS:**

In order to be eligible for graduation, a student must:

1. Pass all medicine years within the respected time limit set for the M.D. program at LAU (details of criteria for yearly academic promotion are presented in the School of Medicine Academic Policies);
2. Demonstrate satisfactory completion of all assigned remedial work;
3. Demonstrate compliance with policies and code of conduct;
4. Obtain clearance for graduation from the Library, Registrar’s Office, Athletics Department, dorms and clinical facilities.
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 offers a Bachelor of Science in Nursing (B.S.N.) degree that will enable graduates to work as generalist nurses. 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 and professional development.

PROGRAMS/DEGREES AVAILABLE
Bachelor of Science in Nursing (B.S.N.)

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 health care.

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.

DEAN
Nancy Hoffart, Ph.D., RN, Professor

ASSISTANT DEAN
Myrna A.A. Doumit, Ph.D., RN, Associate Professor

FACULTY
Mira Abi Saad Youssef, M.S.N., RN, Clinical Instructor
Rita Doumit, Ph.D., RN, Assistant Professor
Maha Habre, M.S.N., RN, CEN, Clinical Instructor
Ola Sukkarieh-Haraty, Ph.D., RN, Assistant Professor
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;
7. Base practice on the fundamental nursing values of accountability, advocacy, altruism, autonomy, human dignity, integrity and social justice;
8. Provide care that is respectful and sensitive to diversity in patients’ cultural traditions, religion, age, gender and socioeconomic circumstances;
9. Use biomedical and information technologies to deliver high quality care, support clinical decision making, communicate and mitigate error.
10. Show leadership through involvement in patient safety and quality improvement initiatives;
11. Partner with patients and members of the interprofessional team to achieve optimal outcomes of care;
12. 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;

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;

ADMISSION
Students seeking admission into the Bachelor 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 students who have completed the freshman requirements and students in other majors may seek admission to the nursing program through petition.
ACADEMIC RULES AND PROCEDURES

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 B.S.N. program, see the Student Handbook located on the School of Nursing website (http://nursing.lau.edu.lb).

GRADUATION REQUIREMENTS
To qualify for the B.S.N. degree the student must:

1. Meet credit requirements: Holders of the Lebanese Baccalaureate or equivalent who are admitted as sophomores must earn at least 103 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 133 credits (see "Freshman Requirements" for additional details);
2. Successfully complete all requirements including LAC, professional courses and prerequisite courses;
3. Earn a grade point average of at least 2.0 in all professional courses;
4. Earn a cumulative grade point average of at least 2.0;
5. Earn P (pass) grades in the cooperative education experiences;
6. Complete the required courses within seven years from the time of first enrollment in NUR201.

STUDY PLAN

SOPHOMORE YEAR - B.S.N. I

Fall Semester (13 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHM200</td>
<td>Essentials of Chemistry</td>
<td>3</td>
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<tr>
<td>PED___</td>
<td>Physical Education</td>
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<tr>
<td>BIO200</td>
<td>Basic Biology</td>
<td>3</td>
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<tr>
<td>NUT201</td>
<td>Fundamentals of Human Nutrition</td>
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</tr>
<tr>
<td>PSY201</td>
<td>Introduction to Psychology</td>
<td>3</td>
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Spring Semester (17 credits)

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<thead>
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<th>Course</th>
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</thead>
<tbody>
<tr>
<td>ENG202</td>
<td>Sophomore Rhetoric</td>
<td>3</td>
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<tr>
<td>PSY234</td>
<td>Development Across the Lifespan</td>
<td>3</td>
</tr>
<tr>
<td>NUR201</td>
<td>Fundamentals of Nursing and Health Assessment</td>
<td>4</td>
</tr>
<tr>
<td>BIO222</td>
<td>Microbiology, a Human Perspective</td>
<td>3</td>
</tr>
<tr>
<td>BIO260</td>
<td>Human Anatomy and Physiology</td>
<td>3</td>
</tr>
<tr>
<td>BIO261</td>
<td>Human Anatomy and Physiology Lab</td>
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Summer Semester (6 credits)

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<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>ENG203</td>
<td>Fundamentals of Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>NUR210</td>
<td>Professional Nursing Concepts I</td>
<td>3</td>
</tr>
<tr>
<td>NUR230</td>
<td>Nursing Cooperative Experience I</td>
<td>0</td>
</tr>
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</table>

JUNIOR YEAR - B.S.N. II

Fall Semester (17 credits)

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>LAC___</td>
<td>Arabic Language or Literature elective</td>
<td>3</td>
</tr>
<tr>
<td>NUR310</td>
<td>Pathophysiology for Nursing Practice</td>
<td>4</td>
</tr>
<tr>
<td>NUR312</td>
<td>Pharmacology for Nursing Practice</td>
<td>3</td>
</tr>
<tr>
<td>NUR320</td>
<td>Health and Illness Concepts I</td>
<td>4</td>
</tr>
<tr>
<td>NUR340</td>
<td>Core Nursing Practicum I</td>
<td>3</td>
</tr>
</tbody>
</table>
COURSE DESCRIPTIONS

NUR201 Fundamentals of Nursing and Health Assessment [2-4, 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.
Prerequisites: admission to the nursing major.
Co-requisites: BIO260/261 Human Anatomy and Physiology/Lab, BIO222 Microbiology, a Human Perspective.

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-requisites: 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 200 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.

NUR310 Pathophysiology for Nursing Practice [4-0, 4 cr.]
Students learn the pathogenesis of various symptoms and diseases affecting the human body. Altered physiological functions of human organs are explained and then described on the molecular, cellular, organ and systemic levels. Common pathophysiologic processes are discussed in conjunction with recent research. The interrelationships between clinical pathophysiology and basic
physiology and genetics are emphasized.

Prerequisites: BIO260/261 Human Anatomy and Physiology/Lab; CHM200 Essentials of Chemistry.

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.

Prerequisites: Admission to the nursing major, CHM200 Essentials of Chemistry.

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 [4-0, 4 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, BIO222 Microbiology, a Human Perspective.
Co-requisites: NUR340 Core Nursing Practicum I, NUR310 Pathophysiology for Nursing Practice.

NUR321 Health and Illness Concepts II [4-0, 4 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.

Prerequisites: NUR320 Health and Illness Concepts I.

NUR330 Nursing Cooperative Experience II [0 cr.]
In the second cooperative experience students are employed in various health care agencies, working a minimum of 200 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-requisites: 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.

Prerequisites: NUR340 Core Nursing Practicum I.
Co-requisites: 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.

**Prerequisites:** NUR340 Core Nursing Practicum I.

**Co-requisites:** 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.

**Prerequisites:** 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.

**Prerequisites:** NUR410 Professional Nursing Concepts II.

### NUR420 Health and Illness Concepts III [4-0, 4 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.

**Prerequisites:** 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.

**Prerequisites:** NUR342 Core Nursing Practicum III, NUR321 Health and Illness Concepts II, NUR315 Health Care Research and Evidence-based Practice. Co-requisites: NUR420 Health and Illness Concepts III, NUR410 Nursing Professional Concepts II.

### 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.

**Prerequisites:** NUR342 Core Nursing Practicum III, NUR321 Health and Illness Concepts II, NUR315 Health Care Research and Evidence-based Practice.

### 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 the knowledge and skills to foster health behavior change in individuals, families, communities and populations. Students will plan, deliver and evaluate health education and behavior 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.

**Prerequisites:** NUR342 Core Nursing Practicum III, NUR321 Health and Illness Concepts II, NUR315 Health Care Research and Evidence-based Practice.
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.  
Prerequisites: NUR342 Core Nursing Practicum III, NUR321 Health and Illness Concepts II, and NUR315 Health Care Research and Evidence-based Practice.

NUR475 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-requisites: NUR411 Professional Nursing Concepts III.

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-requisites: NUR411 Professional Nursing Concepts III.
THE SCHOOL OF PHARMACY
PROGRAMS/DEGREES AVAILABLE:
- Bachelor of Science (B.S.) in Pharmacy
- Doctor of Pharmacy (Pharm.D.)

The B.S. in Pharmacy program extends over five academic years including two years of pre-pharmacy and three professional years (P1, P2, and P3) of pharmacy education. After receiving the B.S. in Pharmacy, a student may apply for admission into the fourth professional year (P4) leading to the Pharm.D. degree. Successful completion of the B.S. in Pharmacy program qualifies graduating students to sit for the National Competency Assessment Examination (Colloquium) in Lebanon.

The Pharm.D. program extends over six academic years, including the five years leading to the B.S. in Pharmacy. Successful completion of the Pharm.D. program qualifies graduating students to sit for the North American Pharmacy Licensure Examination (NAPLEX) in the United States.

MISSION
The School’s primary responsibility is to graduate pharmacists who are entrusted with the highest academic standards to apply and disseminate the most updated information about drugs in the various and ever changing health care systems. Graduates will be competent to practice pharmacy in all settings and be equipped with the necessary values to serve society in a most caring, professional, and ethical conduct.

PROGRAM EDUCATIONAL GOALS
The goal of the program is to prepare pharmacy graduates to:
1. Provide evidence-based patient centered care to optimize pharmacotherapy outcomes in various multidisciplinary health-care practice settings;
2. Manage pharmacy operations in hospitals, community pharmacies, and industrial settings;
3. 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;
4. Perform duties in accordance with legal, ethical, socio-economic and professional standards;
5. Integrate scholarly research with clinical pharmacy practice and commit to self-directed lifelong learning.

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 professional Doctor of Pharmacy (Pharm.D.) program at the Lebanese American University School of Pharmacy is accredited by the Accreditation Council for Pharmacy Education (ACPE). Currently, it is the only Pharm.D. program outside the United States that is accredited by ACPE. The initial program review by ACPE occurred in the year 2002 when full accreditation was granted.

DEPARTMENTS
The School of Pharmacy comprises two departments: Pharmaceutical Sciences and Pharmacy Practice. The Pharmaceutical Sciences Department provides pharmacy students with the foundation in basic and applied pharmaceutical and biomedical sciences, as well as in social, behavioral and administrative sciences.

Faculty members of the Pharmaceutical Sciences Department have diverse teaching involvement and scholarly interests. These include pharmacology, pharmacokinetics, pharmacogenetics, pharmaceutics, pharmacognosy, pathophysiology, microbiology, molecular medicine, biology, immunology, chemistry, biochemistry, biomedical ethics, behavioral sciences, biostatistics, management, and more. Department Faculty are involved in didactic teaching, scholarly activities and laboratory research, and service to the School, University, profession and community.

The mission of the Pharmaceutical Sciences Department is to educate students
in biomedical, pharmaceutical, social, behavioral and administrative sciences. The department is committed to promote research excellence and provide meaningful contributions to the profession and community.

Members of the Pharmaceutical Sciences Department will accomplish the department’s mission through the following activities:

1. Foster professional development in students by promoting critical thinking and life-long learning;
2. Conduct basic and translational interdisciplinary research in pharmaceutical sciences;
3. Encourage faculty, staff and students to participate in community service and professional development activities;
4. Maintain a collegial environment to support faculty and staff retention and development.

The Pharmacy Practice Department provides pharmacy students with a comprehensive foundation of clinical sciences and experiential education, and reinforces students’ knowledge of social, behavioral and administrative sciences and their application to contemporary pharmacy practice.

Clinical faculty members of the Pharmacy Practice Department have diverse practice and scholarly interests. These include infectious disease, hematology/oncology, nephrology, neurology, ambulatory care, endocrinology, drug information, critical care, cardiology, endocrinology, nutrition support, internal medicine, pharmacoconomics, medication safety, and more.

Department faculty are involved in providing the didactic teaching of pharmacotherapeutics; experiential education of pharmacy students; scholarly activities related to their areas of interest and specialty; patient care; and service to the School, University, profession and community. Faculty members are also involved in developing and implementing innovative practice models that are in line with emerging healthcare and health-systems needs.

The mission of the Pharmacy Practice Department is to prepare and model for the next generation of pharmacy professionals by fostering a perpetual commitment to excellence in education, health care and clinical research.

Members of the Pharmacy Practice Department will provide exemplary professional service through the following activities:

1. Prepare students for entry into the pharmacy profession in an environment that promotes critical thinking, life-long learning, leadership and professionalism;
2. Recruit, retain and promote competent Clinical faculty in diverse areas of clinical specialties;
3. Pioneer the role of interdisciplinary practice through commitment to serving patients and promoting quality public health;
4. Contribute to the pharmacy and healthcare literature by conducting and publishing clinical research.
DEAN
Pierre Zalloua, Ph.D.

ASSOCIATE DEAN FOR ACADEMIC AFFAIRS
Imad Btaiche, Pharm.D., BCNSP

ACTING ASSISTANT DEAN FOR STUDENTS AFFAIRS
Jad Abdallah, Ph.D.

CHAIRS
Roy Kanbar, D.Pharm. Ph.D., Pharmaceutical Sciences
Aline Saad, Pharm.D., Pharmacy Practice
Lamis Karaoui Pharm.D., BCPS, Director of Experiential Education

FACULTY
FULL-TIME FACULTY
J. Abdallah, Ph.D.
T. Abouantoun, Ph.D.
I. Btaiche, Pharm.D., BCNSP
N. Chamoun, Pharm.D., BCPS
S. Chamoun-Nasser, Pharm.D.
H. Dimassi, Ph.D.
W. Kabbara, Pharm.D.
R. Kanbar, Pharm.D., Ph.D.
L. Karaoui, Pharm.D., BCPS
G. Khoury, Pharm.D.
H. Mansour, Pharm.D., BCPS
A. Milane, D.Pharm., Ph.D.
M. Mroueh, Ph.D.
W. Ramadan, Pharm.D.
E. Ramia, Pharm.D.
H. Rizk, M.D.*
Y. Saab, Pharm.D., Ph.D.
A. Saad, Pharm.D.
M. Sheikh-Taha, Pharm.D., BCPS
P. Zalloua, Ph.D.
A. Zeitoun, Pharm.D.
R. Zeeney, Pharm.D.

*50% SOP + 50% SAS
**50% SOP + 50% at UMC-RH

PART-TIME FACULTY
F. Abillama, M.D.
B. Chami, Pharm.D.
M. Dunia, M.D.
M. El Beyrouthy, Ph.D.
R. Fahd, M.S.
M. Ghassibe, Ph.D.
L. Haddad, Ph.D.
M. Jaber, Pharm.D., BCPP
B. Khodor, M.D.
V. Loubnan, Pharm.D.
Z. Nassour, D.Pharm., R.Ph.
Y. Saab, Ph.D.
S. Shelh, R.Ph.
R. Takchi, M.Sc.
Z. Tannous, M.D.
S. Tokajian, Ph.D.

LEBANON-BASED ADJUNCT FACULTY
W. Abi Ghanem, R.Ph.
C. Abighosn, R.Ph.
C. Abi Khalid, R.Ph.
R. Abi Khalil, R.Ph.
C. Abou Jaoude, R.Ph.
R. Abou Jaoude, R.Ph.
S. Addada, R.Ph.
I. Adaimy, R.Ph.
M. Ahdab, R.Ph.
A. Alameddine, R.Ph.
M. Alameh, R.Ph.
A. Ali, R.Ph.
F. Antaki, R.Ph.
C. Asmar, R.Ph.
R. Azzam, R.Ph.
M. Bawab, R.Ph.
C. Barbar, R.Ph.
R. Batrouni, R.Ph.
T. Beani, R.Ph.
R. Bitar, R.Ph.
R. Chaarani, R.Ph.
N. Chidiac, R.Ph.
Z. Damerji, R.Ph.
L. Draiby R.Ph.
N. Drouby, R.Ph.
N. Drouby, R.Ph.
R. El-Ali R.Ph.
M. El-Masri R.Ph.
T. Farah, R.Ph.
J. Ghsoub, R.Ph.
S. Helou, R.Ph., Pharm.D.
B. Hindi, R.Ph.
R. Hokayem, R.Ph.
S. Itani, R.Ph., Pharm.D.
H. Jardaly, R.Ph.
L. Kara, R.Ph., Pharm.D.
F. Kehde, R.Ph.
K. Kevorkian, R.Ph.
K. Khawand, R.Ph.
G. Khayat, R.Ph., Pharm.D.
C. Kaprianos, R.Ph., Pharm.D.
A. Kordahi, R.Ph.
A. Kouyoumj, R.Ph.
C. Kreidy, R.Ph.
M. Machmouchi, R.Ph.
F. Mahfouz, R.Ph.
R. Mansour, R.Ph.
F. Maroun, R.Ph.
I. Mokdad, R.Ph.
N. Mouawad, R.Ph.
Y. Najjarin, R.Ph.
Z. Nassour, R.Ph.
E. Nehme, R.Ph.
N. Nehme, R.Ph.
S. Obeid, R.Ph.
S. Rahbani, R.Ph.
Y. Saad, R.Ph.
J. Sakr, R.Ph.
R. Sakr, R.Ph.
S. Sammak, R.Ph.
U. Shanouha, R.Ph.
S. Shelh, R.Ph.
S. Shelh, R.Ph.
G. Sili, R.Ph., Pharm.D.
L. Skayem, R.Ph., Pharm.D.
O. Tabboush, R.Ph.
BACHELOR OF SCIENCE (B.S.) IN PHARMACY

ADMISSION

The professional program requires successful completion of pre-pharmacy studies. Applicants transferring from an outside academic institution must have a minimum letter grade B or its equivalent on any of the major pre-pharmacy courses (see below) or their LAU course equivalents, for them to be eligible for applying to the Professional Year 1. All applicants must complete an application form that can be obtained from the office of Student Affairs at the School of Pharmacy. The application deadline is May 15 with all required documents included. Incomplete or late applications will not be processed.

To be eligible for admission to the professional program, applicants must fulfill all of the following conditions in pre-pharmacy:

1. Completed all pre-pharmacy courses with a minimum cumulative GPA of 2.5;
2. Passed all major courses with a minimum letter grade C on any course. Major courses include all PHAcourses as well as BIO201, CHM201, CHM311, CHM312, CHM313, and CHM314. For the non-major courses, D is considered a passing letter grade;
3. Did not exceed three course repeats, whether these repeats were of the same course or different courses. Note that a course withdrawal noted WF is counted as repeat;
4. Did not receive more than one official academic warning;
5. For transfer students, only courses listed in the pre-pharmacy curriculum, either transferred from an outside academic institution or LAU, will be taken into consideration in the calculation of the GPA and the number of repeats;

Evaluation criteria for admission into the professional program are based on:

1. The cumulative GPA as well as the GPA related to major courses;
2. The performance on an interview conducted during the admissions process;
3. A cumulative internal evaluation by all school faculty who were directly
involved in teaching the applicant;
4. Three recommendation letters (attached to the application);
5. An assessment of the applicant’s writing skills based on his/her performance in a short essay;
6. Number of repeated courses (R), withdrawals (WF), and failed courses (F);
7. Number of official academic warnings.

The School Admissions Committee reviews the applications and conducts student interviews at the end of the spring semester of the preceding academic year.

Admission to the professional pharmacy program takes place in the fall semester of the following academic year. The Professional Year 1 has a capacity to accommodate a maximum of 75 students each year.

A student who meets the admissions criteria may carry over one course from the pre-pharmacy program to the professional program, upon the approval of the School Academic Council. This exception does not apply to courses from which a student has withdrawn or scored a final letter grade F. Moreover, a student seeking this exception must provide proof that he/she was unable to repeat the course prior to the start of Professional Year 1. A student must pass the said course with a minimum letter grade C within the following academic year, otherwise he/she will not be promoted to the next academic year.

The Lebanese American University is an equal opportunity institution and does not consider the race, sex, religion or national origin of an applicant as a criterion for admission into the program.

**ACADEMIC PROBATION & DISMISSAL FROM THE PROFESSIONAL PROGRAM**

A student can register in a course up to three times, including withdrawals.
A student is dismissed from the school if he/she fails to score at least a letter grade C in the same PHA course after three attempts.
A student is placed on probation if his/her cumulative GPA is below 2.00 at the end of a semester for all courses taken at LAU during that semester, irrespective of incomplete grades or withdrawals.

A student on probation may not carry more than 13 credits in a regular semester and is advised to repeat as soon as possible the courses with a letter grade F or D.

A student who does not come off academic probation within two consecutive semesters of enrollment at LAU (summer modules excluded) will be suspended regardless of any incompletes and semester withdrawals.

A student suspended after academic probations must submit a petition to the Registrar’s Office. Readmission into LAU is not guaranteed and each case is carefully reviewed for its own merit.

A student readmitted after suspension will be placed on probation and given two semesters excluding summers to remove the probation. Failure to remove the probation will lead to the student’s dismissal from the university.

**PROMOTION TO A HIGHER YEAR**

A student must pass all professional program courses with a minimum letter grade C in order to advance to the next professional year.

A student may carry over to the next professional year only one course with a letter grade D, D+ or C- after securing the approval of the School Academic Council. Courses from which students have withdrawn or scored a letter grade F may not be carried over. A carried over course must be completed with a minimum letter grade C within the next academic year or summer semester in order to be promoted to the next professional year.

A student must successfully complete all Professional Years 1 and 2 didactic courses of the program prior to enrolling in the Professional Year 3 Pharmacy Practice Experiences (PHA570, PHA571, and PHA572).

**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.
DOCTOR OF PHARMACY (PHARM.D.)
The Pharm.D. program extends over four professional years in addition to the
two pre-pharmacy years.

ADMISSION
Applicants into the Professional Year 4 (P4) leading to the Pharm.D. degree
must apply within two years of completing Professional Year 3 (P3) in any
ACPE-accredited program. They must complete an application form for admis-
sion into the P4 year.

The application forms are obtained from the Student Affairs Office at the school
and must be submitted with all required documents before December 15.
Incomplete applications and any application received after the deadline will not
be processed.

To be eligible for applying to admission into the P4 year, students must fulfill
all of the following conditions during their professional pharmacy years:

1. Completed all professional pharmacy courses with a minimum cumula-
tive GPA of 2.5.
2. Passed all courses of the professional pharmacy program with a minimum
letter grade C on any course.
3. Did not exceed three course repeats, whether these repeats were of the
same course or different courses (note: a course withdrawal noted WF is
counted as repeat).
4. Did not receive more than one official academic warning.

Evaluation criteria for admission into the professional program are based on:

1. The GPA related to the professional pharmacy program courses;
2. The performance on an interview conducted during the admissions pro-
cess;
3. A cumulative internal evaluation by school faculty who were directly
involved in teaching the applicant;
4. Three recommendation letters (attached to the application);
5. Number of repeated courses (R), withdrawal (WF), and failed courses (F);
6. Number of official academic warnings.

The School Admissions Committee reviews the applications and conducts
interviews at the end of fall semester of the P3 year. Student acceptance into the
P4 year remains pending until successful completion of all P3 courses. A student
may not carry any course from the pharmacy professional program to the P4
year. Admission to the P4 year takes place in the fall semester of the academic
year. The P4 year has a capacity to accommodate 25 to 30 students each aca-
demic year.

Students admitted into the Pharm.D. program are subject to the requirement
stated in the ACPE Standard 14, Guideline 14.6, namely “the required Advanced
Pharmacy Practice Experiences in all program pathways must be conducted in
the United States or its territories or possessions.”

GRADUATION REQUIREMENTS
To graduate with a Pharm.D. degree, a student must have a minimum GPA of
2.00 and grades of C or higher in all required courses.
STUDY PLAN

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 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>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ARA— Appreciation of Arabic Literature</td>
<td>3</td>
</tr>
<tr>
<td>BIO201 General Biology I</td>
<td>4</td>
</tr>
<tr>
<td>CHM201 Chemical Principles</td>
<td>3</td>
</tr>
<tr>
<td>PED— Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>—— LAC–Arts</td>
<td>3</td>
</tr>
<tr>
<td>—— LAC–Social Sciences</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring Semester (16 credits)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM311 Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHM313 Organic Chemistry I Lab</td>
<td>1</td>
</tr>
<tr>
<td>ENG202 Sophomore Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>PHA202 Medical Anatomy &amp; Physiology</td>
<td>4</td>
</tr>
<tr>
<td>PHA204 Computer Application to Pharmacy</td>
<td>2</td>
</tr>
<tr>
<td>—— LAC–Literature</td>
<td>3</td>
</tr>
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</table>

PRE-PROFESSIONAL YEAR II

<table>
<thead>
<tr>
<th>Fall Semester (14 credits)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM312 Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHM314 Organic Chemistry II Lab</td>
<td>1</td>
</tr>
<tr>
<td>ENG203 Fundamentals of Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>PHA209 Principles of Pathophysiology &amp; Immunology</td>
<td>4</td>
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<tr>
<td>PHA211 Microbiological Basis of Disease</td>
<td>3</td>
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</table>

<table>
<thead>
<tr>
<th>Spring Semester (17 credits)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO—</td>
<td>LAC–Micro/Macroeconomics</td>
</tr>
<tr>
<td>PHA205</td>
<td>Statistics for Health Profession Majors</td>
</tr>
<tr>
<td>PHA208</td>
<td>Medical Biochemistry</td>
</tr>
<tr>
<td>PHA210</td>
<td>Systems Pathophysiology</td>
</tr>
<tr>
<td>——</td>
<td>LAC–Cultural Studies, History, Philosophy or Religion</td>
</tr>
</tbody>
</table>

PROFESSIONAL YEAR I

<table>
<thead>
<tr>
<th>Fall Semester (18 credits)</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>PHA308 Pharmaceutical Analysis &amp; Biotechnology</td>
<td>2</td>
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<tr>
<td>PHA309 Pharmaceutical Analysis &amp; Biotechnology Lab</td>
<td>1</td>
</tr>
<tr>
<td>PHA312 Medicinal Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>PHA314 Dosage Forms I</td>
<td>3</td>
</tr>
<tr>
<td>PHA315 Dosage Forms I Lab</td>
<td>1</td>
</tr>
<tr>
<td>PHA320 Physical Assessment</td>
<td>2</td>
</tr>
<tr>
<td>PHA322 Professional Communication</td>
<td>1</td>
</tr>
<tr>
<td>PHA333 Pharmacy Management</td>
<td>3</td>
</tr>
<tr>
<td>PHA367 Professional Elective</td>
<td>2</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring Semester (15 credits)</th>
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<tbody>
<tr>
<td>PHA313 Medicinal Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>PHA316 Dosage Forms II</td>
<td>3</td>
</tr>
<tr>
<td>PHA317 Dosage Forms II Lab</td>
<td>1</td>
</tr>
<tr>
<td>PHA325 Pharmacy Practice &amp; Ethics</td>
<td>2</td>
</tr>
<tr>
<td>PHA330 Pharmacology I</td>
<td>4</td>
</tr>
<tr>
<td>PHA340 Pharmacotherapeutics I</td>
<td>2</td>
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</table>

<table>
<thead>
<tr>
<th>Summer Semester (3 credits)</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>PHA398 Pharmacy Practice Management I</td>
<td>3</td>
</tr>
</tbody>
</table>
### PROFESSIONAL YEAR II

**Fall Semester (18 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHA421</td>
<td>Drug Information &amp; Literature Evaluation</td>
<td>2</td>
</tr>
<tr>
<td>PHA422</td>
<td>Pharmacokinetics &amp; Biopharmaceutics</td>
<td>4</td>
</tr>
<tr>
<td>PHA430</td>
<td>Pharmacology II</td>
<td>4</td>
</tr>
<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>PHA567</td>
<td>Professional Elective</td>
<td>2</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>PHA435</td>
<td>Pharmacognosy &amp; Evidence-Based Herbal Medicine</td>
<td>2</td>
</tr>
<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 &amp; Pharmaceutical Care</td>
<td>3</td>
</tr>
<tr>
<td>PHA452</td>
<td>Toxicology</td>
<td>3</td>
</tr>
</tbody>
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**Summer Semester (3 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHA497</td>
<td>Introduction to Professional Pharmacy Practice Experience</td>
<td>1</td>
</tr>
<tr>
<td>PHA499</td>
<td>Pharmacy Practice Management II</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>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHA523</td>
<td>Clinical Pharmacokinetics* or Professional Elective</td>
<td>1</td>
</tr>
<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>
</tbody>
</table>

### PROFESSIONAL YEAR IV

**Fall Semester (18 credits)**

The Professional Year 4 curriculum applies only to Pharm.D. students. The following four required Advanced Pharmacy Practice Experiences (APPEs) are conducted in the United States or its territories or possessions (District of Columbia, Guam, Puerto Rico, and U.S. Virgin Islands):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHA670</td>
<td>Ambulatory Care</td>
<td>3</td>
</tr>
<tr>
<td>PHA671</td>
<td>Community Pharmacy</td>
<td>3</td>
</tr>
<tr>
<td>PHA672</td>
<td>Hospital/Health System Pharmacy</td>
<td>3</td>
</tr>
<tr>
<td>PHA673</td>
<td>Inpatient/Acute Care General Medicine</td>
<td>3</td>
</tr>
</tbody>
</table>

The five elective experiential education experiences may be chosen from any of the following choices of the course PHA650 Elective Advanced Pharmacy Practice Experiences (APPEs):

- Ambulatory Care
- Adult Oncology

*Students interested in applying to Professional Year 4 leading to the Pharm.D. should take PHA523 Clinical Pharmacokinetics (1 cr.) as a professional elective.*

**Spring Semester (17 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>
<tr>
<td>PHA515</td>
<td>Pharmacy Seminar</td>
<td>1</td>
</tr>
<tr>
<td>PHA567</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>
</tbody>
</table>

A total of 6 credits of professional electives, as one-credit or two-credit courses, should be completed before graduation.
COURSE DESCRIPTIONS

PHARMACEUTICAL SCIENCES DEPARTMENT

PHA202 Medical Anatomy and Physiology [4 cr.]
This course covers the anatomy and physiology of the human body, with emphasis on the central nervous system, the autonomic nervous system, the cardiovascular and renal systems, and the immune, endocrine, gastrointestinal and respiratory systems. A thorough understanding of receptors, their affinity to drugs and hormones, as well as targets for therapeutic interventions will be emphasized. Congenital malformations and their physiological impacts will also be discussed.
Prerequisites: BIO201.
Co-requisites: Pre-Professional Year 1 status.

PHA204 Computer Application to Pharmacy [2 cr.]
This course covers the use of computers for solving professional, educational and business problems. The course also covers the utility of computer technology, online information resources, hardware peripherals, CD-ROM databases, programs, and multimedia computing systems, which pharmacists can use in their practice.
Co-requisites: Pre-Professional Year 1 status.

PHA205 Statistics for Health Profession Majors [3 cr.]
This course covers the descriptive and basic inferential statistics, and issues surrounding the design of biomedical and biopharmaceutical investigations.
Co-requisites: Pre-Professional Year 1 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: BIO201, CHM201, CHM311, CHM312, CHM313, and CHM314.
Co-requisites: Pre-Professional Year 2 status.
**PHA209 Principles of Pathophysiology and 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.

*Prerequisites: PHA202.*

*Co-requisites: Pre-Professional Year 2 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.

*Prerequisites: PHA209.*

*Co-requisites: Pre-Professional Year 2 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.

*Prerequisites: BIO201.*

*Co-requisites: Pre-Professional Year 2 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: PHA208.*

*Co-requisites: Pre-Professional Year 1 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: PHA208.*

*Corequisites: PHA308 and Professional Year 1 status.*

**PHA312 Medicinal Chemistry I [3 cr.]**
This course covers the physicochemical properties of various drug categories, their relation to biological activity, metabolic pathways, and structure-activity, and their adverse effects.

*Prerequisites: CHM312 and CHM314.*

*Co-requisites: Professional Year 1 status.*

**PHA313 Medicinal Chemistry II [3 cr.]**
This course is a continuation of Medicinal Chemistry I.

*Prerequisites: PHA312.*

*Co-requisites: Professional Year 1 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 1 status.*

**PHA315 Dosage Forms I Laboratory [1 cr.]**
This is a compounding laboratory taken concurrently with PHA314. Techniques and principles used to prepare and dispense individual extemporaneous pre-
scriptions, including calculations and dating of compounded dosage forms, are discussed.

Corequisites: PHA314 and Professional Year 1 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.

Prerequisites: PHA314.
Corequisites: PHA317 and Professional Year 1 status.

PHA317 Dosage Forms II Laboratory [1 cr.]
This is a compounding laboratory taken concurrently with PHA316.

Prerequisites: PHA315.
Corequisites: PHA316 and Professional Year 1 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.

Prerequisites: PHA209 and PHA210.
Co-requisites: Professional Year 1 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.
Co-requisites: Professional Year 1 status.

PHA325 Pharmacy Practice and Ethics [2 cr.]
This course is an introduction to the practice of pharmacy in institutional and community settings. It entails the study of the development of the profession of pharmacy and the ethical principles upon which the profession rests.

Co-requisites: Professional Year 1 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.

Prerequisites: PHA210 and PHA312.
Corequisites: PHA313 and Professional Year 1 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.

Co-requisites: Professional Year 1 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: PHA205 and PHA330.
Co-requisites: Professional Year 2 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.

Prerequisites: PHA316.
Co-requisites: Professional Year 2 status.

PHA430 Pharmacology II [4 cr.]
This course is a continuation of PHA330.
Prerequisites: PHA210, PHA313, PHA330 and PHA211.
Co-requisites: Professional Year 2 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.
Prerequisites: PHA313.
Co-requisites: Professional Year 2 status.

PHA452 Toxicology [3 cr.]
This course covers the fundamental and mechanistic aspects of toxicology, with
emphasis on the mechanisms of toxicants, pathophysiology, clinical manifesta-
tions, and on the management of toxic exposures and antidotal therapy.
Prerequisites: PHA330, PHA430 and PHA422.
Co-requisites: Professional Year 2 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.
Co-requisites: Professional Year 3 status.

PHA512 Lebanese Pharmacy Law and Regulation [1 cr.]
This course covers 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 manu-
facturing 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 the 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.
Co-requisites: Professional Year 3 status.

PHA550 Introduction to Pharmacogenomics [1 cr.]
This course covers the relationship of genetic individual variability to drug
response.
Prerequisites: PHA430.
Co-requisites: Professional Year 3 status.

PHA557 Pharmacoeconomics [3 cr.]
This course is an introduction to the role of pharmacoeconomics in the health
care system, with emphasis on research outcomes. This course covers the appli-
cation of pharmacoeconomic analysis in clinical practice.
Prerequisites: PHA333 and PHA421.
Co-requisites: Professional Year 3 status.

PHA560 Clinical Nutrition & Diet Therapy [2 cr.]
This course covers the principles of nutrition, with emphasis on the nutrition-
al 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.
Co-requisites: Professional Year 3 status.

PHARMACY PRACTICE DEPARTMENT

PHA340 Pharmacotherapeutics I [2 cr.]
This is the first in a series of six courses addressing the pharmacotherapeutic
principles and functional consequences of the disease state. Discussion will
focus on the therapeutic problem solving and the evaluation of drugs common-
ly used in clinical practice. Individualization of pharmacotherapy, selection of
appropriate drug regimen, with its efficacy and toxicity monitoring parameters,
and the assessment of various drug interactions, and their adverse reactions, are covered. Disease prevention, patient counseling, and pharmacoconomics issues will be an integral part of each disease state management. Pharmacotherapeutics of psychiatric diseases will be discussed.

Prerequisites: PHA210, PHA312 and PHA320.
Corequisites: PHA330 and Professional Year 1 status.

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, PHA330, PHA340.
Corequisites: Professional Year 1 status.

PHA441 Pharmacotherapeutics II [3 cr.]
This course focuses on endocrinologic and oto/ophthalmologic diseases, and women's health.
Prerequisites: PHA210, PHA313, PHA316, PHA320 and PHA398.
Corequisites: PHA430 and Professional Year 2 status.

PHA442 Pharmacotherapeutics III [3 cr.]
This course focuses on the pulmonary, gastrointestinal, arthritic and nephrologic diseases.
Prerequisites: PHA210, PHA313, PHA316, PHA320, and PHA398.
Corequisites: PHA430 and Professional Year 2 status.

PHA443 Pharmacotherapeutics IV [3 cr.]
This course focuses on the cardiovascular and dermatologic diseases.
Prerequisites: PHA210, PHA313, PHA316, PHA320, PHA398 and PHA430.
Corequisites: Professional Year 2 status.

PHA444 Pharmacotherapeutics V [3 cr.]
This course focuses on infectious diseases.
Prerequisites: PHA210, PHA211, PHA313, PHA316, PHA320, PHA398 and PHA430.
Co-requisites: Professional Year 2 status.

PHA445 Pharmacotherapeutics VI [3 cr.]
This course focuses on the hematological/oncologic, neurologic, genitourinary, and reproductive system diseases.
Prerequisites: PHA210, PHA313, PHA316, PHA320, PHA398 and PHA430.
Co-requisites: Professional Year 2 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 2 status.

PHA497 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.
Prerequisites: PHA210, PHA313, PHA316, PHA320, PHA322, PHA333, PHA330 and PHA340.
Co-requisites: Professional Year 2 status.

PHA499 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, PHA330 and PHA340.
**Co-requisites:** Professional Year 2 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.
**Co-requisites:** Professional Year 3 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.

**Prerequisites:** Passing all the PHA courses from the professional years.
**Co-requisites:** Professional Year 3 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.

**Prerequisites:** Passing all the PHA courses from the professional years.
**Co-requisites:** Professional Year 3 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.

**Prerequisites:** Passing all the PHA courses from the professional years.
**Co-requisites:** Professional Year 3 status.

**PROFESSIONAL PHARMACY ELECTIVES**
Note: Electives will be offered under the same course number: PHA567 (Special Topics) and would include, but not restricted to, the following listed courses.

**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.

**Prerequisites:** PHA422.
**Co-requisites:** Professional Year 3 status.

**PHA567 Special Topics - Public Health [1 cr.]**
This course introduces topics of public health to the students of pharmacy. The course looks at leading causes of death, and measures of morbidity/mortality. Topics related to outbreaks, screening, vaccinations, health determinants, major chronic diseases, and public health program planning and evaluation are covered in the course.

**Co-requisites:** Professional Year 1 status.

**PHA567: Special Topics - Immunizations [1 cr.]**
This course will provide students with the knowledge of vaccine-preventable diseases and the role of pharmacists as vaccine advocates.

**Co-requisites:** Professional Year 1 status.
PHA567 Special Topics - First Aid [1 cr.]
This course introduces students to first aid skills needed to respond to respiratory and cardiac emergencies, to reduce pain, and to minimize the consequences of injury or sudden illness.
Co-requisites: Professional Year 2 status.

PHA567 Special Topics - Cosmeceuticals and dermatology [1 cr.]
This course will provide pharmacy students with a well-rounded knowledge on skin diseases and skin care methods mostly seen in the outpatient setting.
Co-requisites: Professional Year 2 status.

PHA567 Special Topics - Drug Interactions [1 cr.]
This course focuses on assessment and application of drug interaction information and identification, and management of commonly encountered drug interactions by therapeutic category.
Co-requisites: Professional Year 2 status.

PHA567 Special Topics - Career Opportunities [1 cr.]
This course will provide students with insights into different pharmacy career opportunities.
Co-requisites: Professional Year 2 status.

PHA567 Special Topics - Pharmacoepidemiology [1 cr.]
This course introduces the students to the principles, concepts and application of epidemiology in the field of pharmaceutical sciences. The course consists of lectures, assigned readings that provide the students with basic knowledge and tools relevant to pharmacoepidemiology practice.
Co-requisites: Professional Year 3 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 the Pharmacy Practice Department and the Director of Experiential Education.

Experience Scheduling
The Chair of the Pharmacy Practice, the Director of Experiential Education 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 Director of Experiential Education, with a valid excuse, by the third and the fourth week of July 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 ambulatory care, community pharmacy practice, hospital/health system pharmacy practice and acute care internal 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 patient 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 while 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.

PHA650 Elective Advanced Pharmacy Practice
The elective experience is designed to allow the student to develop a stronger understanding of a specialty area.
For direct patient care experiences, the goals that students should achieve during this elective experience are generally to further understand the pathophysiology and treatment of various diseases in that specialty, and to develop strong and advanced skills in the design and monitoring of rational pharmacotherapy regimens and how they can utilize the available data to maximize patient 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 while 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.
Prerequisites: 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.
INSTITUTE FOR BANKING & FINANCE (IBAF)
The Institute of Banking and Finance serves as a hub for executive training in the country. The 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.

CISCO INSTITUTE
This institute offers Cisco courses in computer networking, and trains Cisco instructors for the Middle East and North Africa (MENA). It performs quality visits to regional and local Cisco academies in said region. The visits are meant to ensure the academies offer high-standards Cisco courses, and have the proper manpower and equipment resources to perform the work.

INSTITUTE FOR DIPLOMACY & CONFLICT TRANSFORMATION (IDCT)
The end of the Cold War has created new geopolitical realities in the world, generating new types of global and internal conflicts that require policymakers and scholars to go beyond the traditional rules of diplomacy. New techniques for resolving conflict such as conflict prevention, confidence building, peace building, and peace making are part of these efforts. Moreover, diplomacy refers now to more than an interaction between two or more governments to incorporate unofficial exchanges of private citizens as well as unofficial diplomacy. The Institute for Diplomacy and Conflict Transformation aims to employ a progressive definition of diplomacy in its efforts to create a culture of peace that would reduce violence and increase justice. Director: Dr. Walid Moubarak.

INSTITUTE OF FAMILY & ENTREPRENEURIAL BUSINESSES (IFEB)
The Institute of Family and Entrepreneurial Business serves family-owned and operated businesses. This institute develops educational programs to support individuals and families in maintaining successful family enterprises. It aims to further the continuity and prosperity of Lebanese and Middle Eastern family businesses by conducting research, spreading information, updating professionals, and providing problem-solving assistance to family enterprises.

INSTITUTE FOR HOSPITALITY & TOURISM MANAGEMENT STUDIES (IHTMS)
The Institute for Hospitality and Tourism caters to the training and research needs of this sector. This institute 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 RESOURCES INSTITUTE
This institute seeks to provide high-quality human resources development programs to prepare Lebanese and regional employees, and human resources professionals and their employers, for the future. The institute’s activities include research of current issues, professional development programs, and comprehensive publications programs.

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 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.
INSTITUTE FOR MEDIA TRAINING & RESEARCH (IMTR)
The LAU’s Institute for Media Training and Research emerged from the consolidation of two institutes that had been active at LAU for a number of years: the Beirut Institute for Media Arts and the Institute for Professional Journalists. The merging of the two institutes capitalizes on the strengths of each by combining and expanding the scope of their traditional activities and by allowing for new ones, in line with the tendency toward convergence in the media industry. IMTR activities aim at promoting media research, encouraging debate on media effects and responsibility, and improving standards among students and young professionals. Director: Dr. Yasmine Dabbous

INSTITUTE FOR MIGRATION STUDIES (IMS)
The Institute for Migration Studies breaks the academic drought on this important, albeit often ignored, subject. It strives to conduct research and publish key findings and scholarly works in the field of migration studies. LAU, with its vision for excellence in education and research, offers the perfect locale for the functioning and success of such an institute. In its pursuit of pioneering and innovative research activities, IMS cooperates with international institutions and research centers that have similar research agendas. It aims to establish affiliations with sister institutes in universities located in Arab countries. The objective is to establish a network for migration research in the Arab world housed at LAU. Director: Dr. Paul Tabar

INSTITUTE FOR PEACE AND JUSTICE EDUCATION (IPJE)
The Institute for Peace and Justice Education was established in 1997. In 2001 it became part of a consortium of international university-based peace education institutes with partners in New York, Japan, the Philippines and Argentina. The consortium is an initiative of the Global Campaign for Peace Education launched by the Hague Appeal for Peace. The Institute endorses the GCPE aiming at institutionalizing peace education. A culture of peace will be achieved when citizens of the world understand global problems; have the skills to resolve conflict constructively; know and live by international standards of human rights, gender and racial equality; appreciate cultural diversity; and respect the integrity of the Earth. Director: Dr. Irma-Kaarina Ghosn

SOFTWARE INSTITUTE
The software and information technology sectors in Lebanon can be important components of national economic development plans. The Software Institute aims to support the process of realizing Lebanon’s potential to develop its software industry and services in order to make it regionally competitive and internationally visible. Director: Dr. Danielle Azar.

TEACHER TRAINING INSTITUTE (TTI)
The main purpose of the Teacher Training Institute is to meet the unique curriculum and reform needs of schools throughout the country. Today’s teachers are expected to play a variety of roles in the classroom: educators, motivators, guides, counselors, coaches and disciplinarians. In addition, teachers must continually educate themselves, learning about new advances in education, new technologies and new ways to encourage their students to reach their full potential. Director: Dr. Iman Osta.

URBAN PLANNING INSTITUTE (UPI)
The institute’s purpose is to address problems of urban growth and environmental change in Lebanon and the Middle East. It aims at assisting certain Lebanese ministries in studies related to planning, zoning, land use, demographic projections, CAD mapping, urban statistics, utilities, conservation and recycling of resources, land management, natural reserves, etc.

INSTITUTE FOR WATER RESOURCES & ENVIRONMENTAL TECHNOLOGIES (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.
SCHOOL OF ARCHITECTURE & 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 course. 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- and large-format analogue cameras, and full digital studio equipment.

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.

SCHOOL OF ARTS & SCIENCES

DEPARTMENT OF COMMUNICATION ARTS:
The Department of Communication Arts houses the following facilities: A newsroom; TV/Film studios; a radio studio, and three theatres.

DEPARTMENT OF COMPUTER SCIENCE AND MATHEMATICS:
The Department of Computer Science and Mathematics houses modern 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.

DEPARTMENT OF EDUCATION:

Early Childhood Education Laboratory School (ECE LS)
LAU’s ECE LS is a modern-day regular preschool that caters to children 2 to 4 years of age. It adopts a holistic child-centered approach to learning and development. The preschool is fully equipped with a lab setting consisting of two observation booths overlooking the two 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 LAU ECC is many-fold:
1. It provides quality care for the children, in a nurturing and child-centered environment;
2. It uses, from an academic perspective, a multidisciplinary educational approach: while its primary purpose is to serve as a professional learning platform for students majoring in early childhood education, it also benefits students majoring in education, psychology, music, drama, nursing, among others;
3. It serves as a training hub for ECE professionals both nationally and internationally, thus supporting positive growth, recognition and reputation;
4. It provides a rich environment for research in early childhood development and education as well as promotes collaborative research between faculties locally, regionally and internationally;
5. It encourages involvement on the part of the community.
DEPARTMENT OF ENGLISH LANGUAGE INSTRUCTION:

English Language Laboratory
The English Language Laboratory (located on the Beirut campus) is a learning environment that offers programmed texts, DVDS, CDs, etc., for the development of different skills and increased effectiveness in the use of basic learning tools. Laboratory sessions reinforce listening, speaking, reading, writing, and note-taking. Computer-assisted language learning (CALL) tools are offered to support the learners. Self-access facilities are also available. Online learning is offered as part of reinforcing academic learning skills through the university’s e-learning provider, WebCT/Blackboard. Online materials and links undergo continuous updates.

In addition to regular class work, the English Language Lab offers a service called the Take Over Program (TOP), aiming to help learners overcome English language problems that may impede their academic work. Students can come to TOP with any number of English language problems, such as reading, comprehension, and writing well-constructed essays. The program is very flexible; students can join or leave it at any time. It is based on face-to-face tutorials and sometimes on classes of up to five students with similar language problems. TOP is also offered through WebCT/Blackboard.

Writing Center
The LAU Writing Center, located on the Beirut campus, is devoted to academic excellence and student-centeredness. The center aims at promoting a general culture of writing at the university, at enhancing writing across the curriculum, and at helping students develop as more thoughtful, independent, and rhetorically effective writers. It is not a drop-off, editing, or proofreading service; rather, it is a place where writers can develop their writing skills and strategies.

Free, one-hour individual consultations are offered to all members of the LAU community. Undergraduate and graduate students from any discipline are welcome to share any text, at any stage of the writing process, with writing tutors who will guide them in a nondirective style. Tutors are trained to respect each writer’s level of achievement, encourage analytical thinking, and discuss strategies for writing. Texts may include academic essays, research papers, reading responses, résumés and curriculum vitae, among others.

DEPARTMENT OF NATURAL SCIENCES, BEIRUT CAMPUS:

Biology Laboratories
The biology laboratories of the Beirut campus, consist of two teaching labs and one research lab. These labs serve both undergraduate and graduate students and are well equipped with sophisticated and modern instrumentation supporting all disciplines of biology.

Biology Teaching Lab (Sage 106)
This lab accommodates 20 undergraduate students per session mainly majoring in biology and pharmacy, in addition to freshman students. The main equipment includes microscopes, balances, pH meters, fridges, a rotary evaporator, centrifuges (high speed and refrigerated), incubators, shakers, UV-Visible spectrophotometers, an automated gel stainer/destainer, a hybridization oven, autoclaves, a fluorometer, an electroporator, Isoelectric Focusing, pulse-field gel electrophoresis-sis, different types of electrophoresis setups (horizontal and vertical) and a dishwasher. This lab is also fully equipped with an audiovisual system including video-microscopy and LCD projector for continuous demonstration and experimental purposes. Annexed to the biology lab is a storage facility and small room for preparing reagents.

Biology Teaching Lab (Sage 109)
The most recent addition to our biology labs, it can accommodate 20 students per session and is mainly equipped for experiments in genetics and cell/molecular biology lab courses in addition to the senior study. It contains a microtome, a tissue embedding system, a refrigerated centrifuge, a deep freeze (-80 °C), a homogenizer, a thermal cycler, Western blot apparatus and electrophoresis setups in addition to a balance, a water bath and a pH meter. This lab is also partially used as a research lab, serving the research needs of biology faculty as well as senior and graduate students.
The Fluorescent Microscopy Lab
Annexed to the second teaching lab, this is a small room equipped with a state-of-the-art inverted fluorescent microscope.

The Research Lab and Cell Culture Facility
This facility is primarily equipped to serve as a cell culture facility and is mainly used as a research facility by senior and graduate students as well as biology faculty. Despite its modest size, this facility is very well equipped and contains several state-of-the-art pieces of equipment, including a Type IIA biological safety cabinet, two CO₂ incubators, an Accuri C6 flow cytometer, an ELISA plate reader and washer, an inverted microscope, an imaging system, a liquid nitrogen storage tank and an autoclave, in addition to a mini-centrifuge, an analytical balance, a water bath and vortexes.

Chemistry Laboratories
The three chemistry labs in Beirut are equipped for practical course work by students majoring in chemistry, biology and pharmacy. The labs accommodate up to 50 students of all levels. The labs support experiments ranging from freshman-level to those requiring advanced analysis and techniques. They include basic equipment such as PC-controlled viscosity meters, osmometers, BOD analyzers, turbidimeters, refractometers and polarimeters.

An 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 chromatography; total organic carbon and NCHS elemental analyzers systems; atomic absorption.

Two of the labs contain fume hoods that provide workspaces for four students at a time. Annexed to the chemistry laboratories are storage facilities with the latest safety equipment of gas detection, chemical spill and fire alarm systems. The labs employ the latest methods for waste treatment and management.

Physics Laboratories
The physics laboratory underwent a complete renovation in 2012.

The new physics lab, which is designed to accommodate 20 students, has computer stations, each with probes and sensors for automated data acquisition through interfaces for precise data collection and analysis.

The upgraded lab is now equipped with multimedia system that allows projection of computer monitor and video images on wall screens. The facility provides freshmen, premed, engineering, chemistry and biology students with lab courses covering topics in introductory physics, classical and modern physics, mechanics, and electricity and magnetism.

It houses sophisticated and up-to-date experimental setups including probe-ware accessories, photogate accessories, dynamic systems accessories, rotational system accessories, fluid dynamics setups, electrostatic systems, electronic circuits, power supplies, optics systems, spectral light sources, spectrosopes, fundamental constants setups, and many other equipment.

DEPARTMENT OF NATURAL SCIENCES, BYBLOS CAMPUS:
The natural sciences laboratories in Byblos are equipped with technological instruments that enable students to conduct both basic and highly specialized research. In addition to facilities available in the department, students have access to those of the School of Pharmacy.

Biology Laboratories
Each of two teaching labs 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-visible spectrophotometers, spirometers, kymographs, environmental chamber, etc.). Annexed to the lab are two relatively smaller rooms. One serves as a store room for chemicals, glass and plastic-ware, the other contains a high-speed centrifuge, an ultracentrifuge, two refrigerators and other minor equipment.

Core Molecular Microbiology Research Lab
This lab is equipped with state-of-the-art tools for molecular microbiology research. It is equipped with a DNA sequencer, three thermal cyclers, a real-time PCR, a UV-visible spectrophotometer, a biology bacterial identification system, a
PCR preparation unit, and two air incubators, as well as other minor instruments.

**Two Core Molecular Biology Labs**
Each lab consists of three benches serving as working areas for graduate students. These labs are equipped specifically to fit molecular biology research needs. These labs are equipped with thermal cyclers, pulse-field gel electrophoresis unit, gel documentation systems, fermenters, vacuum concentrator, vacuum blotter, sonicators, homogenizers, freeze dryer, gel electrophoresis apparatus, Western blot apparatus, automated gel stainer/destainer, radioactive/fluorescent microplate counter, 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.

**The Genomics and Proteomics Research Labs**
To partake in the wonderful opportunities offered by genetic research and to contribute to global efforts to improve human health, a comprehensive center for genetics and genomics research was established in 2005 at LAU, by the schools of Arts and Sciences, Medicine, and Pharmacy, under the umbrella of the Institute of Human Genetics (IHG).

The Genomics and Proteomics Lab, the core unit of IHG, has received major support in grants and equipment for the development of genomics, proteomics and glycomics research, and comprises additionally the only accredited molecular microbiology lab outside the European Union as a regular member of the SeqNet organization for microbial sequencing.

The planned center for genetics research will cover a full spectrum of activities and provide opportunities in the following.

**Genomics Facility Core:** The initial objectives of the facility core are to make available to LAU investigators a wide range of reliable, validated assays for analyzing changes in gene expression. Applying the latest U.S. standards in genomics-based programs, the lab links fundamental life science research programs with applied research across the campus. It serves as a research facility to faculty and graduate students in many disciplines including biological, medical and pharmacological sciences.

**Genetic Information and Counseling:** In addition to socio-cultural information, those who become associated with the center can undergo analyses to determine the existence of genetic risk factors for common and rare disease, drug reactions and eventually dosing regimens (pharmacogenomics), and other information on health-related risks and benefits which can be learned from genomic analysis.

**Gene Mining and Drug Discovery:** The center will use functional genomics technologies to generate a comprehensive and multidimensional description of well-defined states of complex diseases, which will be used as a platform for studying the causes of these complex diseases. Lebanese and Middle Eastern populations provide a unique opportunity to study the genetics of complex diseases as the average rate of consanguineous marriages can range from 25% to more than 50%.

**The Cell Culture IVF/Epifluorescent Microscopy Lab**
This is a dry lab that contains an inverted epifluorescent microscope equipped with a micromanipulating system for in vitro fertilization, two laminar flow hoods, two CO₂ incubators, ELISA reader, refrigerators, etc.

**The Proteomics Lab**
It is a dry lab that houses a state-of-the-art proteomic analyzer MALDI TOF TOF in addition to an IR and Nano-LC. This lab is mainly used by faculty and graduate students. It is also accommodates undergraduate students working on their senior study.

**Nutrition Laboratories**
**Nutrition Teaching Lab:** The lab is equipped with necessary machines for food analysis including a muffle furnace, a protein digestion and distillation apparatus, a fiber analyzer and fat extraction units.
Dual-Energy X-Ray Absorptiometry (DXA): DXA scans are used by nutrition students to primarily evaluate bone mineral density. It also helps them to measure total body composition and fat content with a high degree of accuracy.

Animal Room
The animal room 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.

The Chemistry Lab
This lab is utilized in a variety of courses serving chemistry, biology, and pre-pharmacy students. The lab accommodates approximately 20 students per session and is equipped for the General Chemistry, Quantitative Analysis and Organic Chemistry I and II lab courses. As such, the lab houses various fume hood types along with required safety installations.

Adjacent to the lab is a chemical storage and a glass storage room as well as the supervisor’s office. Combined with the various wet and dry laboratories located in the vicinity, these labs house advanced instrumentation including a 300 MHz NMR spectrometer, gas chromatograph, gas chromatography–mass spectrometry (GC-MS) instruments with autosampler capability, various HPLC units, UV-visible spectrophotometers, fluorometer, electrochemical work station, spin coater, chemical microwave, high vacuum sublimation system, freeze dryer, and nitrogen liquefier, to name a few.

SCHOOL OF ENGINEERING

CIVIL ENGINEERING LABORATORIES
The Department of Civil Engineering is committed to provide hands-on measurements and experimentation, as a vital component of the educational program. The Civil Engineering Laboratories provide undergraduate students with state-of-the-art equipment for experimentation and demonstration of the basic concepts covered in class. The labs also serve for research by the faculty, and for students’ final-year projects.

The Civil Engineering Laboratories play a leading role in serving as testing facilities, as well as in technical consultation for several engineering firms and private entities, following 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 lab 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 lab helps students understand the basic principles of surveying by conducting numerous field exercises. Most of the
Field exercises are conducted outside the lab room to gather field data. Reduction and calculation of field data for final result is done in the lab 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, surveying and collecting various data, and analyzing those data.

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

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

The Digital Design Laboratory is the home of the microprocessors and reconfigurable computing courses. Here, students who take microprocessor programming courses come into contact with real life, step-by-step, processor programming. They learn to program, at the assembly level, and culminate in practical projects based on the used microcontrollers.

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 Linux 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.

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 Ubuntu Linux units. Most of the general engineering applications, as well as office productivity software, are centralized in this area.

The Networking Laboratory features the latest networking devices from Cisco Systems.
INDUSTRIAL AND MECHANICAL ENGINEERING LABORATORIES

The Fluid Mechanics Laboratory is equipped with the necessary 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.

The Heat Transfer Laboratory features 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 for the evaluation of the processes occurring in each heat exchanger.

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

The 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.

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

The 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 modeled part.

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.

The Instrumentation Laboratory is an environment that helps students become familiar with instrumentation and measurement techniques. It features data acquisition modules connected to 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.

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.

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.

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.

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.

THE ALICE RAMEZ CHAGOURY SCHOOL OF NURSING

THE 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 nine-bay inpatient simulation laboratory replicates 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 skills task trainers. The eight-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 enhances students’ competence and confidence when caring for patients in hospitals and other care delivery sites.

THE SCHOOL OF PHARMACY

PHARMACY LABS

The Pharmacy Research Lab is designed to allow faculty and Pharm.D. candidates to conduct research. 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 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 the 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.

At the Compounding Laboratory students learn the fundamental techniques used for the extemporaneous preparation of dosage forms, as part of the requirements of the Dosage Forms I and Dosage Forms II courses. The lab deals with the formulation, preparation, handling, and evaluation of pharmaceutical products. It 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 drugs to patients. Emphasis is on computerized patient record keeping, patient counseling, finding errors and omissions in prescriptions, and communication with other health care providers and patients. The lab is designed to mimic a community pharmacy. It includes shelved medications, storage cabinets, counseling area desks, auxiliary medication labels, personal computers, a printer, a bar code reader, and pharmacy textbooks.
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  M.D., Lebanese University, 1995.
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• **El Hussari, Ibrahim – School of Arts and Sciences**  
*Ed.D., Education, University of Leicester, 2002.*  
*Ph.D., Literature, Kensington University, 1982.*

• **El Jamal, Maher Mohamad – School of Business**  

• **El Khalil, Raed – School of Business**  
*Ph.D., Engineering in Manufacturing Systems, Lawrence Technological University, 2009.*

• **El Khatib, Nader – School of Arts and Sciences**  
*Ph.D., Applied Mathematics, Université Lyon I, 2010.*

• **El Khoury, Ghada – School of Pharmacy**  
*Pharm.D., Pharmacy, Lebanese American University, 2007.*

• **El Khoury, John – School of Engineering**  
*Ph.D., Civil Engineering, Virginia Polytechnic Institute, 2005.*

• **El Sibai, Mirvat – School of Arts and Sciences**  
*Ph.D., Molecular Pharmacology, Yeshiva University, 2007.*

• **Fahd, Charbel – School of Medicine**  
*Vitreoretinal Diseases, Cataract, Anterior Segment, West Virginia University, 1997.*  
*Ophthalmology, American University of Beirut, 1983.*  
*M.D., American University of Beirut, 1980.*

• **Fahr, Anna – School of Arts and Sciences**  
*M.A., Film & Middle Eastern Studies, New York University, 2010.*

• **Fakhoury, Tamirace – School of Arts and Sciences**  
*Ph.D., Political Sciences, University of Freiburg, 2007.*
• Fakih, Ali – School of Business
  Ph.D., Applied Economics, Université de Montreal, 2011.

• Fakih, Khodr – School of Business
  J.D., Law, Northwestern University, 2008.

• Fallaha, Arwa – School of Architecture and Design
  D.E.S., Dessin et Peinture, Lebanese University, 1980.

• Faour, Wissam – School of Medicine
  Ph.D., Molecular Biology, Université de Montreal, 2004.

• Farah, Maya – School of Business
  Ph.D., Marketing, The University of Manchester, 2007.

• Farhat, Hussein – School of Medicine
  Nuclear Medicine, Liege State University, 1994.
  Laboratory Medicine, Liege State University, 1992.
  M.D., Liege State University, 1986.

• Farjallah, Tony – School of Arts and Sciences
  M.A., Sciences de L’Education, Université de Montreal, 1996.

• Fawaz, Wissam – School of Engineering
  Ph.D., Network & Information Science, University of Paris 13, 2006.

• Fedhila, Hassouna – School of Business
  Ph.D., Business Administration, University of Colorado, 1990.

• Ferzli, Antoine – School of Medicine
  Gastroenterology, University of Lyon, 1978.
  GI Endoscopy and Gastroenterology, University of Lyon, 1977.
  Internal Medicine, St Hilaire de Touvet Hospital, 1977.
  M.D., University of Lyon, 1975.

• Ferzli-El Ramy, Julie – School of Medicine
  Cardiac MRI, Gasthuisberg Hospital, 2006.
  Pediatric Radiology and Cardiac CT, Charles Nicole Hospital, 2004.
  Radiology, Lebanese University, 2003.
  M.D., Lebanese University, 1998.

• 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.

• Geitani, Bassam – School of Architecture and Design
  D.E.S., Dessin et Peinture, Lebanese University, 1989.

• Gerges, Bassam – School of Medicine
  M.D., Faculty of Medicine & Pharmacy JASSY, 1984.

• Ghajar, Raymond – School of Engineering

• Ghanam Nemr, Rita – School of Medicine
  Endocrinology/Lipodology, Pitie-Salpetriere Hospital, 1997.
  M.D., Saint Joseph University, 1992.

• Ghanem, George – School of Medicine
  Interventional cardiology, Tenon Hospital, 1992.
  Congenital and pediatric cardiology, Universite de Paris Val-de-Marne, 1990.
  Cardio-vascular Pathology, les universites de l-ile-de-France, 1989.
• Ghanem, Hady – School of Medicine
  Internal Medicine, Cooper University Hospital, 2009.

• Ghattas, Renée – School of Business

• Ghosn, Irma-Kaarina – School of Arts and Sciences

• Ghouzail, Mahmoud – School of Nursing
  M.S., Nursing, American University of Beirut, 2013.

• Habchi, Wassim – School of Engineering
  Ph.D., Mechanical Engineering, Institut National des Sciences Appliquées de Lyon (INSA), 2008.

• Habib-Tofailli, Mary – School of Business

• Hage, Boutros Pierre – School of Architecture and Design

• Haidar, Mona – School of Medicine
  M.D., American University of Beirut, 2003.

• Halkort, Monika – School of Arts and Sciences
  Ph.D., Sociology, The Queen’s University of Belfast, 2013.

• 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
  C.P.A., Accounting, Maryland State Board of Public Accountancy, 1984.
  B.A., Business Management, University of Maryland, 1981.

• Harik, Ramy – School of Engineering
• Harmanani, Haidar – School of Arts and Sciences
  Ph.D., Computer Engineering, Case Western Reserve University, 1994.

• Hashwa, Fouad – School of Arts and Sciences
  Ph.D., Microbiology, University of Gottingen, 1972.

• Hassan, Hussein – School of Arts and Sciences
  Ph.D., Food Science, University of McGill, 2011.

• Hayek, Toni – School of Medicine
  Chirurgie orthopedique et traumatologie, Université de Nice, 1992.
  M.D., Université de Nice, 1989.

• Hijazi, Abeer – School of Pharmacy

• Hijazi, Zeinat – School of Medicine

• Hirbli, Kamal – School of Medicine
  Endocrinology, Beaujon Hospital, Paris Hotel Dieu, Bichat 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.

• Ismail, Hussein – School of Business

• 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.

• Issa, Leila – School of Arts and Sciences
  Ph.D., Computational and Applied Mathematics, Rice University, 2010.

• Jaana, Mirou – School of Business

• Jabbour, Mona – School of Architecture and Design
  M.F.A., Painting, Pratt Institute, 1990.

• Jabbra, 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.

• Jizi, Mohammad – School of Business
  Ph.D., Accounting and Finance, University of Durham, 2013.

• Jreidini, 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.

• Kabbara, 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, The Victoria University of Manchester, 1987.**

- Kanbar, Roy – School of Pharmacy  
  Pharm.D., Pharmacy, Université Saint Joseph, 2002.**

- Kanning, Mark – School of Business  
  **Ph.D., Tourism Management, Clemson University, 2008.**

- Karaki, Mohamad – School of Business  
  **Ph.D., Economics, Wayne State University, 2012.**

- Karam, Albert – School of Medicine  
  **Nephrology, CHU Henri Mondor, 1982.  
  M.D., Saint Joseph University, 1977.**

- Karam, Gebran – School of Engineering  
  **Ph.D., Materials & Structures, Massachusetts Institute of Technology, 1994.**

- Karaoui, Lamis – School of Pharmacy  
  **Pharm.D., Pharmacy, Lebanese American University, 2005.**

- Karkoulian, Silva – School of Business  
  **Ed.D., Education, University of Leicester, 2003.**

- Karnaby, Sandra – School of Arts and Sciences  
  **M.S., Clinical Nutrition, Long Island University, 2013.**

- Kassar, Abdel Nasser – School of Business  
  **Ph.D., Mathematics, University of South Western Louisiana, 1991.**

- Kays, Ali – School of Architecture and Design  
  **D.E.S., Arts Plastiques, University of Balamand, 2005.**

- Khachan, Victor – School of Arts and Sciences  
  **Ph.D., Applied Linguistics, Macquarie University, 2005.**

- Khairallah, Maya – School of Medicine  
  **Ph.D., Experimental Medicine, McGill University, 2006.**

- Khalaf, Roy – School of Arts and Sciences  
  **Ph.D., Biology, State University of New York, 2001.**

- Khalife, Joseph – School of Arts and Sciences  
  **B.A., Musicology, Université Saint-Esprit Kaslik, 1991.**

- Khalifeh, Joseph – School of Arts and Sciences  
  **M.S., Electrical & Computer Engineering, North Carolina State University, 1986.**

- Khatami, Alireza – School of Arts and Sciences  
  **M.F.A., Film and Television, Savannah College of Art & Design, 2013.**

- Khayat, Sophie – School of Architecture and Design  
  **Diploma, Interior Architecture, Académie Libanaise des Beaux-Arts, 1995.**

- Khazen, Georges – School of Arts and Sciences  
  **Ph.D., Neurosciences, Ecole Polytechnique – Federale de Lausanne, 2011.**

- Khnayzer, Rony – School of Arts and Sciences  
  **Ph.D., Photochemical Sciences, Bowling Green State University, 2013.**

- Khodr, Bilal – School of Medicine  
  Neonatal-Perinatal Medicine, Harvard Medical School, 1997.  
  Pediatrics, Georgetown University Medical Center, 1996.  
  M.D., American University of Beirut, 1993.**

- Khoury, Alfred – School of Medicine  
  **Sport Surgery, Pitie-Salpetriere Hospital, 1997.  
  Orthopedics Surgery, Lebanese University, 1996.  
  M.D., Lebanese University, 1990.**
• Khoury, Melissa Sinclair – School of Architecture and Design

• Khoury, Michel – School of Engineering
  Ph.D., Mechanical Engineering, Lehigh University, 2004.

• Khoury, Nada – School of Architecture and Design
  Ph.D., Environmental Design, Université de Montreal, 2008.

• Khoury, Tarek – School of Architecture and Design

• Kikano, Raghid – School of Medicine
  Vascular and interventional radiology, Cleveland Clinic, 2010.
  Imagerie medicale, CHU Mondor, 2008.

• Kilany, Hala – School of Medicine
  Nephrology, Rizk Hospital, 1998.
  Internal Medicine, Saint Georges Hospital, 1995.
  M.D., Lebanese University, 1993.

• Kiprianos, Joseph – School of Architecture and Design

• Knio, Mona – School of Arts and Sciences

• Korfali, Samira – School of Arts and Sciences
  Ph.D., Chemistry, University of Bradford, 1999.

• Kouatli, Issam – School of Business
  Ph.D., Mechanical Engineering, The University of Birmingham, 1990.

• Kulby, Cindy – School of School of Architecture and Design

• Ladki, Said – School of Business
  Ph.D., Human Nutrition & Foods, Virginia Polytechnic Institute & State
  University, 1993.

• Lahoud, Antoine – School of Architecture and Design
  D.E.S.S., Restauration et Conservation, Lebanese University, 2000.
  D.E.A., Architecture - Amenagement de L'Espace, Ecole d'Architecture de
  Nancy, 1989.

• Lahoud, Bassam – School of Architecture and Design

• Loyato, Martin – School of Arts and Sciences
  Ph.D., Music, State University of New York at Stony Brook, 2011.

• Maalouf, Ruth – School of Architecture and Design

• Maamari, Bassem – School of Business

• Madrigal, Jose Manuel – School of Architecture and Design
  Ph.D., Architecture, University of Seville, 1995.

• Mahfoud, Daniel – School of Medicine
  M.D., Saint Joseph University, 1990.

• 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

• Manassian, Armond – School of Business

• Mansour, Cedar – School of Business
  J.D., Law, West Virginia University, 1991.

• Mansour, Charbel – School of Engineering

• Mansour, Hanine – School of Pharmacy
  Pharm.D., Pharmacy, Lebanese American University, 2002.

• 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
  Pediatric Cardiology, René Descartes University, 2002.
  Pediatrics, Lebanese University, 1999.
  M.D., Lebanese University, 1996.

• 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.

• Micocci, Fabiano – School of Architecture and Design

• 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
  Maitrise, Social Development Lebanese University, 2002.

• Mohsen, Raed – School of Arts and Sciences

• Mokhbat, Jacques – School of Medicine
  Infectious Diseases, University of Minnesota, 1983.
  Internal Medicine, Saint Michael Medical Centre, 1981.
  Clinical Microbiology, Saint Joseph Hospital, 1978.
  M.D., Saint Joseph University, 1977.

• Mouawad, Nelly – School of Arts and Sciences
  Ph.D., Natural Sciences, University of Cologne, 2005.
  Ph.D., Astrophysics, Planetology, Sciences and Spatial Techniques, University Bordeaux 1, 2001.

• Moubarak, Walid – School of Arts and Sciences
  Ph.D., Political Science, Indiana University, 1979.

• Mougharbel, Samar – School of Architecture and Design

• Moujaes, Samar – School of Arts and Sciences
  Ph.D., Arabic Studies, Université de Paris-Sorbonne, 1997.
• Moukaddem Baalbaki, Annelie – School of Business
  M.B.A., Marketing, American University of Beirut, 1996.

• Mourad, Azzam – School of Arts and Sciences
  Ph.D., Electrical and Computer Engineering, Concordia University, 2009.

• Mroueh, Mohammad – School of Pharmacy

• Mufti, Nermine – School of Arts and Sciences

• Na’was, Tarek – School of Arts and Sciences
  Ph.D., Medical Sciences, American University of Beirut, 1983.

• Nabhani, Mona – School of Arts and Sciences

• Nahas, Anna – School of Medicine
  Ph.D., Infectious Diseases, Karolinska Institutet, 2007.
  M.D., Karolinska Institutet, 1996.

• Naja, Hassan – School of Business
  M.B.A., Aviation, Embry-Riddle Aeronautical University, 1981.

• Najjar, George – School of Business
  Ph.D., General Management, University of Southern California, 1975.

• Nakad, Zahi – School of Engineering
  Ph.D., Computer Engineering, Virginia Polytechnic Institute & State University, 2003.

• Naoum, Joseph – School of Medicine
  Vascular Surgery, Baylor College of Medicine, 2007.
  General Surgery, University of Texas, 2003.
  M.D., Vanderbilt University, 1998.

• 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
  Adult reconstruction (Hip & Knee), Illinois Bone and Joint Institute, 2002.
  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, Anis – School of Medicine
  Diagnostic Radiology, Saint Louis University School of Medicine, 2000.
  General Surgery, Loyola University Affiliated hospitals, 1996.
  M.D., Saint Louis University, 1995.

• Nauffal, Diane Issa – School of Arts and Sciences
  Ph.D., Education Administration & Policy, University of Birmingham, 2005.

• Nehme, Rabih – School of Business
  Ph.D., Accounting and Finance, University of Durham, 2013.

• Nour, Chadi – School of Arts and Sciences
  Ph.D., Math, University Claude Bernard (Lyon I), 2003.

• Numanoglu, Gokhan – School of Architecture and Design
• Obeid, Samir – School of Arts and Sciences  

• Osta, Iman – 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., Conflict Analysis & Resolution, George Mason University, 2009.

• Oueini, Ahmad – School of Arts and Sciences  

• Pempedjian, Giselle – School of Arts and Sciences  
  M.S., Educational Leadership, University of Leicester, 2008.

• Peraza Curiel, Igor – School of Architecture and Design  
  Ph.D., Environmental Design, Kumamoto University, 1990.

• 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.

• Riachi, Naji – School of Medicine  
  Epilepsy and Clinical Neurophysiology, Cleveland Clinics Foundation, 1996.  
  Neurology, University Hospitals of Cleveland, 1994.  
  Internal Medicine, Mount Sinai Medical Center, 1991.  
  M.D., American University of Beirut, 1986.

• Rizk, Hikmat – School of Arts and Sciences  
  M.D., Surgery, University of Heidelberg, 1974.

• Rizk, Tamina – School of Medicine  
  Oncology and Breast Imaging, Henri Mondor UH, 2010.  
  Radiology, Saint Joseph University, 2009.  

• Rizk-Jamati, Sandra – School of Arts and Sciences  
  Ph.D., Biology, University of Glasgow, 2000.

• Romanos, Antoine – School of Architecture and Design  

• Romanos, Jimmy – School of Arts and Sciences  
  Ph.D., Physics, University of Missouri, 2012.

• Rouhana, Amal – School of Business  

• Rowayheb, Marwan – School of Arts and Sciences  

• Saab, Nada – School of Arts and Sciences  

• Saab, Samer – School of Engineering  

• Saab, Yolande – School of Pharmacy  
  Pharm.D., Pharmacy, Lebanese American University, 1999.
• Saad, Aline – School of Pharmacy

• Sadaka, George – School of Arts and Sciences

• Salamey, 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.

• Samaha, Roula – School of Medicine
  Infectious Diseases in the Immunocompromised Patients, M.D. Anderson Cancer Centre, 1997.
  Infectious Diseases, Cleveland Clinic Foundation, 1996.
  Internal Medicine, American University of Beirut, 1994.
  M.D., American University of Beirut, 1991.

• 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

• Schuetz, Erhard – School of Architecture and Design
  M.Arch., Architecture, Syracuse University, 1992.

• Semaan, Mars – School of Arts and Sciences
  Ph.D., Physics, Texas Christian University, 1982.

• Serhal, Wassim – School of Medicine
  Laboratory Medicine, CHU Reims, 1998.

• Sfeir, Abdallah – School of Engineering
  Ph.D., Mechanical Engineering, The University of California, 1969.

• Shabb, Bassem – School of Medicine
  Cardiothoracic Surgery, The University of Texas, 1990.
  Surgery, University of Texas, 1988.
  Pathology and Laboratory Medicine, University of Texas, 1983.
  M.D., American University of Beirut, 1982.

• 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

• Sharaeddine, Sanaa – School of Arts and Sciences
  Ph.D., Electrical Engineering, Munich University of Technology, 2005.

• Shehadeh, Mohammad – School of Medicine
  Neurochirurgie rachidienne, Universite de Montreal, 2012.
  Neurosurgery, American University of Beirut, 2010.
  M.D., American University of Beirut, 2002.

• Shweiry, Zein – School of Arts and Sciences
• Skulte-Ouaiss, Jennifer – School of Arts and Sciences
  Ph.D., Government & Politics, University of Maryland, 2005.

• Slim, Bassem – School of Business
  M.S., Hospitality Management, University of Houston, 1993.

• Srieh, Josiane – School of Business
  Ph.D., Management, Université de Paris, 1996.

• Srouji, Hanibal – School of Architecture and Design

• Srour, Jordan – School of Business
  Ph.D., Management-Logistics, Erasmus University, 2010.

• Steel, Jason – School of Architecture and Design

• Sukkarieh-Haraty, Ola – School of Nursing
  Ph.D., Nursing, Northeastern University, 2011.

• Taan, Yasmine – School of Architecture and Design

• Tabar, Paul – School of Arts and Sciences
  Ph.D., Sociology/Anthropology, Macquarie University, 1990.

• Tabbara, Mazen – School of Engineering
  Ph.D., Structural Engineering, Northwestern University, 1990.

• Taha, Marwan – School of Pharmacy
  Pharm.D., Pharmacy, Lebanese American University, 1999.

• Takche, Jean – School of Arts and Sciences
  Ph.D., Mathematics, Pennsylvania State University, 1984.

• Taleb, Robin – School of Arts and Sciences
  Ph.D., Medical Science, University of Western Sydney, 2009.

• Tamim, Haitham – School of Business
  Ph.D., Business Administration, Concordia University, 2011.

• Tannir, Dani – School of Engineering
  Ph.D., Engineering, McGill University, 2010.

• Tannous, Zeina – School of Medicine
  Dermatology, Harvard Medical School, 2005.
  Dermatopathology, Massachusetts General Hospital, Harvard Medical School, 2000.
  Dermatology, American University of Beirut, 1999.
  M.D., American University of Beirut, 1995.

• Tarcha, Walid – School of Medicine
  Cardiology, University Pierre and Marie Curie, 1983.
  M.D., Saint Joseph University, 1979.

• Tjapkes-Langewerf, Lydia – School of Arts and Sciences
  Ph.D., Classics, The University of Nottingham, 2010.
  M.PHIL., Philosophy, University of Cambridge, 2006.

• Tokajian, 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.
• 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.

• Wazne, Mahmoud – School of Engineering

• Wehbe, Ayman – School of Architecture and Design

• Wex, Brigitte – School of Arts and Sciences
  Ph.D., Photochemical Sciences, Bowling Green State University, 2005.

• Yammine, Joseph – School of Medicine
  Pulmonary (Pneumo-Phtisiologie), Université René Descartes, Paris V, 1977.
  M.D., Saint Joseph University, 1974.

• Youssef, Nazih – School of Medicine
  Urology, Lebanese University, 2000.
  M.D., Lebanese University, 1999.

• Yusuf Karameh, Amy – School of Arts and Sciences

• Zakka, Janine – School of Business

• Zalloua, Pierre – School of Pharmacy
  Ph.D., Molecular & Cellular Biology, University of California, 1996.

• Zeaister, Hussein – School of Business

• Zebian, Samar – School of Arts and Sciences

• Zeeeni, Nadine – School of Arts and Sciences

• Zeenny, Rony – School of Pharmacy
  Pharm.D., Pharmacy, Lebanese American University, 2005.

• Zeineh, Salim – School of Medicine
  Basic Urology, University of California, 1983.
  Urology, American University of Beirut, 1982.
  M.D., American University of Beirut, 1977.

• Zeitouni, Latif – School of Arts and Sciences
  Ph.D., Semiotics, Université d’Aix Marseille I, 1985.

• Zgheib, Philipe – School of Business
  Ph.D., Economics, Utah State University, 1994.

• Zouein, Marwan – School of Architecture and Design

• Zouein, Pierrette – School of Engineering
  Ph.D., Civil Engineering, The University of Michigan, 1996.

• Zelek, Tony – School of Medicine
  Reproductive endocrinology, Yale University, 1996.
  M.D., American University of Beirut, 1986.
## Tuition Fees 2013–2014

### Undergraduate Programs

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<th>Program</th>
<th>Per-Term Rate*</th>
<th>Per-Credit Rate</th>
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### Arts

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<td>History</td>
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<td>583</td>
</tr>
<tr>
<td>Communication Arts</td>
<td>7,600</td>
<td>631</td>
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</table>

### Sciences

<table>
<thead>
<tr>
<th>Program</th>
<th>Per-Term Rate*</th>
<th>Per-Credit Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>7,600</td>
<td>631</td>
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<tr>
<td>General Science</td>
<td>7,600</td>
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<tr>
<td>RCD</td>
<td>7,600</td>
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<tr>
<td>Chemistry</td>
<td>7,600</td>
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<tr>
<td>Computer Science</td>
<td>7,600</td>
<td>631</td>
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<tr>
<td>Math</td>
<td>7,600</td>
<td>631</td>
</tr>
<tr>
<td>Math Education</td>
<td>7,600</td>
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<tr>
<td>Science Education</td>
<td>7,600</td>
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<tr>
<td>Nutrition</td>
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</table>

### Graduate Programs

### Arts

<table>
<thead>
<tr>
<th>Program</th>
<th>Per-Term Rate*</th>
<th>Per-Credit Rate</th>
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<tbody>
<tr>
<td>International Affairs</td>
<td>635</td>
<td></td>
</tr>
<tr>
<td>Comparative Literature</td>
<td>635</td>
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<tr>
<td>Education</td>
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### Science

<table>
<thead>
<tr>
<th>Program</th>
<th>Per-Term Rate*</th>
<th>Per-Credit Rate</th>
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<tbody>
<tr>
<td>Molecular Biology</td>
<td>650</td>
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<tr>
<td>Computer Science</td>
<td>650</td>
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</tbody>
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### School of Business

<table>
<thead>
<tr>
<th>Program</th>
<th>Per-Term Rate*</th>
<th>Per-Credit Rate</th>
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</thead>
<tbody>
<tr>
<td>Undergraduate Programs</td>
<td>8,000</td>
<td>660</td>
</tr>
<tr>
<td>Graduate Program**</td>
<td>700</td>
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<tr>
<td>Executive Master of Business Administration**</td>
<td>715</td>
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<tr>
<td>Program</td>
<td>Per-Term Rate*</td>
<td>Per-Credit Rate</td>
</tr>
<tr>
<td>---------------------------------------------</td>
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<td>-----------------</td>
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<tr>
<td><strong>GRADUATE PROGRAM</strong></td>
<td></td>
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<tr>
<td>Civil and Environmental Engineering</td>
<td>715</td>
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<tr>
<td>Computer Engineering</td>
<td>715</td>
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<tr>
<td>Industrial Engineering and Engineering Management</td>
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<tr>
<td><strong>SCHOOL OF ARCHITECTURE &amp; DESIGN</strong></td>
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<td></td>
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<tr>
<td><strong>UNDERGRADUATE PROGRAM</strong></td>
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<tr>
<td>Fine Arts</td>
<td>7,000</td>
<td>580</td>
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<tr>
<td>Interior Design</td>
<td>8,000</td>
<td>660</td>
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<tr>
<td>Graphic Design</td>
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<td>660</td>
</tr>
<tr>
<td>Interior Architecture</td>
<td>8,300</td>
<td>690</td>
</tr>
<tr>
<td>Interior Architecture – Final year</td>
<td>8,300</td>
<td>690</td>
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<tr>
<td>Bachelor of Architecture</td>
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<td>690</td>
</tr>
<tr>
<td>Fashion Design</td>
<td>8,300</td>
<td>690</td>
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<tr>
<td><strong>SCHOOL OF NURSING</strong></td>
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<tr>
<td><strong>UNDERGRADUATE PROGRAM</strong></td>
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<tr>
<td>Nursing – New Students (2013–2014)</td>
<td>5,950</td>
<td>500</td>
</tr>
<tr>
<td>Nursing – Continuing Students (2012–2013)</td>
<td>5,650</td>
<td>470</td>
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<tr>
<td>Nursing – Continuing Students (2011–2012)</td>
<td>5,400</td>
<td>450</td>
</tr>
<tr>
<td>Nursing – Continuing Students (2010–2011)</td>
<td>5,250</td>
<td>438</td>
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<tr>
<td><strong>SCHOOL OF PHARMACY</strong></td>
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<tr>
<td>Undergraduate Program</td>
<td>8,800</td>
<td>730</td>
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<tr>
<td><strong>ANNUAL TUITION</strong></td>
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<tr>
<td>Doctor of Pharmacy (Pharm.D.)</td>
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<table>
<thead>
<tr>
<th>Program</th>
<th>Per-Term Rate*</th>
<th>Per-Credit Rate</th>
</tr>
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<tbody>
<tr>
<td><strong>SCHOOL OF MEDICINE</strong></td>
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<tr>
<td>M.D. PROGRAM</td>
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<tr>
<td>New Students (Year 2013–2014)</td>
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<tr>
<td>Continuing Students (Year 2012–2013)</td>
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</tr>
<tr>
<td>Continuing Students (Year 2011–2012)</td>
<td>25,235</td>
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</tr>
<tr>
<td>Continuing Students (Year 2010–2011)</td>
<td>24,500</td>
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</tr>
<tr>
<td>Continuing Students (Year 2009–2010)</td>
<td>23,500</td>
<td></td>
</tr>
<tr>
<td><strong>OTHERS</strong></td>
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<td></td>
</tr>
<tr>
<td>Special Students</td>
<td>8,800</td>
<td>730</td>
</tr>
<tr>
<td>Doctoral Research Fees – Sciences</td>
<td>4,000</td>
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<tr>
<td>Doctoral Research Fees – Humanities</td>
<td>1,000</td>
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</table>

Amounts shown in U.S. dollars unless otherwise indicated. Exchange rate: $1 = LL 1,507.50.

* Undergraduate students taking 12–18 credits are charged a flat fee per semester/term.

** Graduate tuition is charged per credit.
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B.A. in Political Science  235
B.A. in Political Science–International Affairs  237
B.A. in Psychology  240
B.A. in Social Work  243
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B.S. in Chemistry  212
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B.S. in Economics  287
B.S. in Graphic Design  94
B.S. in Hospitality and Tourism Management  291
B.S. in Interior Design  68
B.S. in Mathematics  128
B.S. in Nursing  385
B.S. in Nutrition  215
B.S. in Pharmacy  395

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banking & finance See B.S. in Business
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business See B.S. in Business
business administration See M.B.A.
chemistry See B.S. in Chemistry
civil engineering See B.E. in Civil Engineering
civil & environmental engineering See M.S. in Civil and Environmental Engineering
communication arts See B.A. in Communication Arts
comparative literature See M.A. in Comparative Literature
computer engineering See B.E. in Computer Engineering; See M.S. in Computer Engineering
computer science See B.S. in Computer Science; See M.S. in Computer Science
early childhood education See B.A. in Education; See also Teaching Diploma
economics See B.S. in Economics
education See B.A. in Education
electrical engineering See B.E. in Electrical Engineering
elementary education See B.A. in Education; See also Teaching Diploma
engineering management See M.S. in Industrial Engineering & Engineering Management
English See B.A. in English
family & entrepreneurial business See B.S. in Business
fashion design See B.A. in Fashion Design
finance See B.S. in Business
fine arts See B.A. in Fine Arts
graph design See B.S. in Graphic Design
design history See B.A. in History
hospitality & tourism management See B.S. in Hospitality and Tourism Management
industrial engineering See B.E. in Industrial Engineering; See also M.S. in Industrial Engineering & Engineering Management
information technology management See B.S. in Business
interior architecture See B.A. in Interior Architecture
interior design See B.S. in Interior Design
intermediate education See Teaching Diploma
international affairs See M.A. in International Affairs; See also B.A. in Political Science–International Affairs
international business See B.S. in Business
journalism See B.A. in Communication Arts
literature, Arabic See B.A. in Arabic Language and Literature
literature, comparative See M.A. in Comparative Literature
management See B.S. in Business; See also M.B.A.
marketing See B.S. in Business
mathematics See B.S. in Mathematics
mechanical engineering See B.E. in Mechanical Engineering
medicine See M.D.
molecular biology See M.S. in Molecular Biology
nursing See B.S. in Nursing
nutrition See B.S. in Nutrition
pharmacy See B.S. in Pharmacy; See Pharm.D.
philosophy See B.A. in Philosophy
political science See B.A. in Political Science
political science–international affairs See B.A. in Political Science–International Affairs
psychology See B.A. in Psychology
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